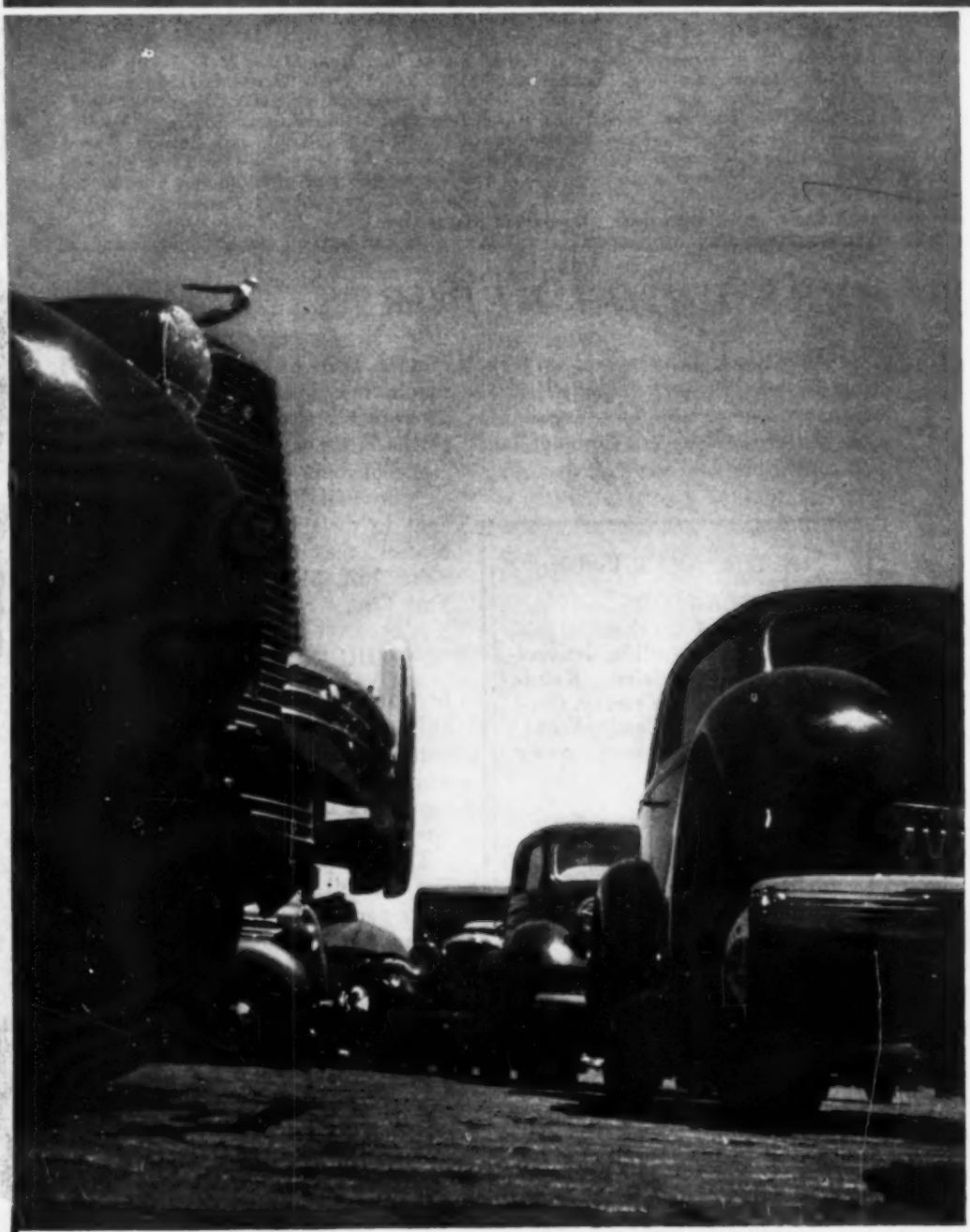
CONSUMERS UNION reports-



1936 Automobiles *See Page 3*

for JUNE 1936 on

AUTOMOBILES

1936
TECHNICAL DIVISION

GASOLINES

MOTH PREVENTIVES

VEGETABLE SOUP

VEGETABLE SEED

MEAT

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CONSUMERS UNION REPORTS:

STRIKE AGAINST HEARST

THE CITIZENS HEARST STRIKE COMmittee, formed to aid the striking employees of Hearst's *Wisconsin News,* is calling on consumers throughout the United States to help labor fight William Randolph Hearst. Consumers have good reason to join hands with workers against Hearst. Willing to do anything which will serve his ends and bring in profits, Hearst has filled up a large part of his papers with advertisements for worthless and dangerous products; he has attacked food, drug, and cosmetic regulation which consumers sought for their protection; with his *Good Housekeeping* magazine and its fraudulent Good Housekeeping Institute he has helped advertisers exploit consumers. Even worse have been his efforts to stifle honest education in the schools.

The Committee's campaign has developed from the four-months' strike of the American Newspaper Guild against Hearst's *Wisconsin News,* a strike which has been ruthlessly fought by the Hearst general management. It has been made obvious that the strike can be won only by an attack on Hearst sources of income throughout the country.

Hearst organs against which the campaign is directed include his string of newspapers; his *Good Housekeeping, Pictorial Review, Harper's Bazaar, Cosmopolitan,* and other magazines; his Metrotone News and Cosmopolitan Pictures; and WINS and the other radio stations he operates. Consumers should remember the names of these enterprises and of the advertisers who persist in supporting them. Those who can contribute to the campaign fund or who will help in organizing the fight in their localities are asked to contact the CITIZENS COMMITTEE, Suite 702, 31 Union Square, New York City.

IN THE NEXT ISSUE:

REFRIGERATORS

Ratings of mechanical refrigerators, including *General Electric, Frigidaire, Kelvinator, Coldspot, Crosley, Grunow, Norge, Westinghouse, Electrolux, Montgomery Ward,* and others.

USED CARS

How to Buy a Used Car—with recommendations of makes and years likely to be good buys.

BATHING SUITS

Ratings of men's and women's bathing suits, covering such brands as *Jantzen, Annette Kellerman, Wikies,* and *Bradley.*

An article on Cooperative Distributors.

A report on sunburn preventives and other reports and articles.

THE COPELAND BILL

IF THE COPELAND FOOD AND DRUG bill is passed by Congress before adjournment, it will be a legislative monstrosity offering protection not to consumers but to medicine manufacturers and advertisers.

The Copeland bill—originally the Tugwell bill—started its career three years ago as a fairly good piece of consumer legislation. Indeed, despite many serious weaknesses it was too good as a consumer protective measure, and far too harsh on the food, drug, and cosmetic industries and newspaper and magazine publishers, to be acceptable to business or to Congress. Skillful lobbyists guiding the willing hand of Senator Royal S. Copeland repeatedly revised the measure, cutting out one good feature after another, until it was so hopelessly bad as a means of curbing dis-

(*Continued on Page* 24)

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Low and Medium Priced 1936

AUTOMOBILES

A report on 22 models of 14 makes of 1936 automobiles selling at advertised prices of less than $800; two cars are rated as Best Buys, 17 as Also Acceptable and 3 as Not Acceptable.

THE *Ford V-8 Standard* AND THE *De-Luxe Plymouth* are considered by Consumers Union automotive consultants to be the *Best Buys* among the 1936 cars selling at advertised prices of less than $800.

The *Ford's* high rating is based on its low price, its good general performance, and its comparative safety at high speed, despite the fact that its economy of operation is poorer than that of other cars.

The *Plymouth* is considered a *Best Buy* because of its low price (though higher than the Standard *Ford*), its good general performance, and its economy of operation. Of the De Luxe models of the *Ford, Chevrolet,* and *Plymouth,* the *Plymouth* is considered to be the best.

Since a higher price does not necessarily bring a car with better performance or even larger size, the cars are not divided up into narrow price groups for purposes of rating. Extra dollars buy, not necessarily a substantially larger or better car, but rather one with greater refinement of detail which is not always essential. The *Dodge,* for example, is not greatly superior to the *Plymouth* mechanically, but it has better trim, and a "big car look." The *Nash 400* has more power than the *Lafayette,* but no more room. Differences within the group under $800 are differences of degree, not of kind.

This report was prepared with a view to its greatest usefulness to the average car buyer. The studies of all of the cars included actual driving by the person reporting on them, his findings and opinions being checked by other automotive consultants.

While safety is given important consideration in the ratings, every modern car, with a body design which cuts the driver's vision for the sake of appearance, and with its powerful engine and high speed, is potentially unsafe. In passing on the safety of cars, we assume that the driver will keep the speed within reasonable limits, that brakes will be properly adjusted and equalized, that there will be no excessive play in the steering gear, and that tires will be kept properly inflated. The sense of responsibility and the competence of the man behind the wheel are the chief factors in safe driving. No car is rated as *Acceptable* unless it is normally safe in the hands of the average driver. Any questionable characteristics under particular operating conditions are noted.

Miles Per Gallon

The gasoline mileage which users can expect from the cars under consideration is a questionable point. Too much reliance should not be placed on a mileage test at constant speed, since the average driver accelerates about twenty times a mile, and relative economy under ordinary city conditions of driving—or even of ordinary road conditions—may be far different from relative economy as shown at constant speed. It should be noted that a car with superior accelerating and hill-climbing ability is likely to be inferior with respect to fuel consumption.

Included in the reports on all of the cars listed is a figure called for convenience "gas consumption factor," which indicates roughly the relative fuel consumption to be expected of the car. The gas consumption factor represents the number of cubic inches of gasoline and air mixture passing through the engine per foot of car travel.

Of all the cars rated, the *Studebaker* has the highest gas consumption factor —68, while the *Willys* has the lowest —41.

Since it is impossible to include delivered prices for all parts of the United States, a single delivered price (that for New York City) is noted for purposes of comparison between cars. The delivered prices given include safety glass throughout and cover a minimum of extra equipment beyond bumpers and spare tire. All prices are for cars with black fenders; an extra charge is usually made for colored fenders. Buyers often have to fight to avoid paying for "optional" accessories with which cars come already equipped. If the buyer insists, however, he can get cars without such optional equipment as second horns and second tail-lights.

Although many persons whose driving is confined almost entirely to city streets consider trunks as unnecessary equipment, trunks are an important convenience to those who go on long trips. Hence the extra cost of a trunk, where one is available for the particular car or model, is noted. This added cost represents the difference in F. O. B. price between models with and without trunks. Consumers may find that the trunk models frequently come with additional extra equipment besides the trunk, which they may have to fight to avoid buying.

Since license fees in many states are based on shipping weight (weight when ready for road is about 150

WIDE CORNER POSTS AND NARROW WINDSHIELDS CUT THE DRIVER'S FIELD OF VIEW.

pounds greater than shipping weight), and in other states on taxable (S.A.E.) horsepower (not the advertised horsepower), the weight and taxable horsepower are included in the listings.

Depreciation

Although automobile dealers' handbooks contain standard figures for the dollars-and-cents depreciation or trade-in value of all makes of cars, these figures are not included, because on checking it is found that dealers do not observe these figures. Trade-in value depends on the condition of the car, the bargaining ability of the owner, the demand at the moment for used cars of the make and model being traded in, and the willingness of the dealer to take a loss in order to sell a new car. Trade-in values were for a time more or less stabilized under the NRA, but this is no longer the case. In general, a great demand for second-hand cars of the low-priced makes gives these a higher trade-in value relative to their initial cost than the higher-priced cars. This is an important consideration to car owners who trade in their cars on new ones every year or two. By and large, *Ford*, *Plymouth*, and *Chevrolet* suffer the least when traded in, both in actual dollars and in percentage of their cost.

Seat widths are noted in the listings only where they are appreciably greater or less than average. The average back seat width is about 46 inches, which for three persons is about 15½ inches per person—a space too small for comfort in distance driving. The average front seat width is about 48 inches. Since the driver requires more room than other front-seat passengers, the front seats of most cars do not seat three comfortably.

A rough attempt has been made to estimate the vision from the driver's seat—up, in the direction of traffic lights; down, in the direction of the fenders and the road; and to the rear. The large curves of the front roof corners, which do help to reduce wind resistance to some extent, often obscure to a dangerous degree, pedestrians or traffic at the left and right of the roadway. Hoods, raised far above the tops of motors and made longer this year in a reversion to the French tradition, shut off the sight of the right-hand curb when parking and prevent any close-up view of the road by short drivers. No car permits good enough visibility, and the terms used—good, fair, and poor—are merely relative to the best offered in current models.

Braking

Brakes on all cars will when new and when cool (for their effectiveness often decreases as they get hot) stop the car well within legal distances. The action of the brakes and of the car under hard emergency braking is important, and is reported on. How long the car owner may expect his brakes to wear without adjustment is indicated. This figure, called "brake loading," is given for each car.

The rate of a car's response to the steering gear is a large factor in safe operation, and one which is often compromised for the sake of easy steering and parking. The ideal ratio for the open road is, in the opinion of expert drivers, about 8 to 1, the ratio used in the days before balloon tires and four-wheel brakes. With balloon tires, however, this ratio gives too little leverage for parking. The *Ford*, on which the steering ratio is held down more than on most cars, has a ratio of 17 to 1; on large, heavy cars the figure goes as high as 22.5 to 1. Though this dangerous extreme does not occur in the range of cars under consideration, some of them steer too slowly for safety and are so reported. The action of each car on turns and its general ability to stay on the road, together with its riding qualities on front and back seats, are mentioned in the listings if there is a significant departure from the normal.

"Cruising Gears"

Individuals with an ear to the ground in Detroit report that next year's cars will be more generally fitted with semi-automatic overdrives or "cruising gears" for high-speed driving. These gears, which take hold at high speeds when the foot is momentarily removed from the accelerator and release automatically as the car slows down, reduce engine speed and wear at high car speeds, but involve the use of free wheeling up to the cruising speed. They are a step in mitigation of the high engine speeds and high gas and oil consumption which American buyers have been advertised into accepting for the sake of "performance" on hills or in acceleration. Overdrive gears, with the free wheeling unit, are built into the transmission and cannot be installed by dealers. Where they are available on the 1936 cars listed here, they are recommended for users who do most of their driving on the open road. In such use, overdrives will pay for themselves in dollars and cents despite their

present high cost, and give a quieter and smoother ride. For city and suburban use their added cost is probably not justified.

Two-Speed Axle

The Columbia two-speed axle, which is featured on the *Auburn* (at $70.00 extra) and which can be installed on the *Ford* by Ford dealers for approximately the same amount, has a similar appeal. It does not involve the use of free wheeling. It has been well tested in service, and is recommended for long-distance driving, but the savings in gasoline, oil, and general wear and tear of the engine will hardly suffice to pay for the unit short of 20,000 miles of driving.

What manufacturers can do in the way of economy, where snappy performance is no object, is shown by the General Motors Economy Unit, details of which are not supplied to dealers. The Unit, involving changes in rear-axle ratio, camshaft, and carburetion, is supplied to fleet buyers on factory order for $7.50 per car. The acceleration, top speed, and hill-climbing ability in high gear are much reduced with this unit, but mileages of 26 to the gallon in New York traffic have been reported.

The effect on economy of "streamlining," or what passes for streamlining on most cars, is non-existent in city driving and negligible even at high speeds. When true streamlining does finally come, however, it should have an important effect in reducing fuel consumption.

Differences between makes of cars in respect to their durability may be overshadowed by even a minor amount of ill treatment in owners' hands. How a car "stands up" depends largely on the speed at which it is driven (which should seldom exceed 75 per cent of its maximum), regular and proper lubrication, and the amount of preventive maintenance provided by the driver. A steering gear which is not adjusted for 20,000 miles may wear so badly in consequence that it cannot be adjusted at all. The most costly form of abuse is to run a car until it breaks down. Nevertheless, certain cars are much harder to keep in good repair than others, and notations to that effect appear in the listings. "Bugs"—errors made in the construction of new models—frequently occur, and Consumers Union will report on them when they can be verified.

There is no way to verify with scientific accuracy the durability of a current model. All that can be done is to study the manufacturing policies, the record of the car in past years, and the way it is put together and finished—and then make a careful estimate.

MAKE	WEIGHT INCLUDING PASSENGERS	AV. TON MILES PER GAL.	AV. MILES PER GAL.
Willys 4	2980	49.48	33.20
Willys 4	2845	45.52	32.00
Willys 4	2610	33.77	25.88
Chevrolet 6	3225	41.43	25.69
Graham Crusader 6	3760	47.61	25.32
Plymouth 6	3845	43.10	22.42
Terraplane 6	3790	45.37	23.94
Pontiac 6	4000	47.89	23.94
Nash "400" 6	4140	46.11	22.12
Oldsmobile 6	3740	44.47	23.78
Pontiac 8	4100	45.10	22.00
Studebaker Dictator 6	4200	50.98	24.27
Auburn 6	3900	46.07	23.62
Chrysler 6	4450	46.62	20.95
De Soto Air Stream 6	4155	48.11	23.15
Graham Supercharged 6	4160	55.47	26.66
Hudson 8	4060	46.40	22.85
Hupmobile 6	4100	45.96	22.42
Nash Ambassador 6	4665	45.61	19.55
Oldsmobile 8	4000	38.68	19.34
Reo 6	4180	31.99	15.30
Auburn 8	4240	42.40	20.00
Chrysler 8	4500	44.49	19.77
De Soto Airflow 6	4470	48.26	21.59
Hupmobile 8	4740	45.84	19.34
Nash Ambassador 8	4800	44.46	18.52
Packard "120" 8	4440	44.40	20.00
Studebaker President 8	4780	48.63	20.34
Chrysler Airflow 8	5820	53.35	18.33
Lincoln "Zephyr" 12	4400	38.91	17.68

RELATIVE GASOLINE MILEAGE FOR VARIOUS MAKES OF CARS AS SHOWN BY THE GILMORE-YOSEMITE ECONOMY RUN

The results of the Gilmore-Yosemite Economy Run held on January 9 of this year are given above. The contest was sponsored by the Gilmore Oil Co., of Los Angeles with the Contest Board of the American Automobile Association acting as referees. The length of the course was 352 miles. All the cars were strictly limited to stock cars of the sedan type.

No Ford V-8 *models were entered in the run, for reasons best known to the Ford Company. It will be noted that there is some discrepancy between the economy indicated by the gas consumption factor used in the accompanying ratings, and the economy shown by the Gilmore run. The fact that too great dependence cannot be placed in such road tests is evident, however, in the wide variations in economy shown by the different* Willys *cars which participated.*

There is no way to determine exactly how much gasoline or oil a car will use per hundred miles in the hands of a hypothetical average consumer. We have used the rating which we believe gives the best available indication of relative gasoline economy.

There are two ways to estimate the safety of an automobile—by a study of its construction, and by a test of its behavior on the road. Both have been done.

This report is based on four-door sedans. It should be pointed out, however, that for those to whom two-door sedans are acceptable considerable savings are possible. The difference in price between a two- and a four-door car is roughly equal to that between a standard and a de luxe model.

Low and Medium Priced Automobiles
Best Buys

Ford V-8 Standard (Ford Motor Co., Dearborn, Mich.)

F.O.B.-$580. Del'd. N.Y.C.-$695. Trunk Model-$25 Extra.

Taxable Horsepower-30.
Shipping Weight-2,850 pounds.
Overall Length-183 inches.
Brake Loading-15.3.
Gas Consumption Factor-62.

The acceleration and power indicated by the *Ford's* high gas consumption factor are well known, as is its relatively poor gas economy. The carburetor is large for the engine, and less heat is applied to the in-going gas than on other cars. These factors tend to increase the amount of fuel used in stop-and-go driving. If full use is made of the high acceleration of a *Ford*, as is usually done, comparatively high gasoline consumption results.

It is necessary to have the *Ford* engine tuned fairly frequently. If this is neglected, the gas consumption can become very high. This accounts for the very poor gas mileage reported by some *Ford* owners. Those who do not want to take the trouble of having the engine checked more or less frequently should consider this a point against the purchase of a *Ford*.

The high speeds at which *Ford* cars can be operated will also, when used, result in high gas and oil consumption. The cars now being shipped out of the *Ford* factory are being fitted with a more economical carburetor than earlier 1936 models and with ignition points which will stay in adjustment longer. The timing characteristics have also been altered to reduce knocking. Oil consumption is no longer likely to be abnormal at reasonable speeds as in earlier models. It will be further improved as soon as the steel pistons which are now being fitted on some cars (and which can usually be obtained if asked for) are standard. Dealers' stocks may still include cars which do not have these improvements.

For low price, buy the Ford Standard; of the De Luxe models, Plymouth is considered the best buy.

Accessibility of mechanical parts for repair is relatively good. The upward vision is good, the vision down good, and that to the rear fair. The brakes, which are mechanical, are good, as is the behavior of the car under braking. The *Ford* steers with medium ease, responding fairly rapidly to the turning of the steering gear. Its road-holding ability is very good, its riding qualities good in the front seat and fair in the back, although there is a tendency of the back to snap or jerk under some road conditions. Both front and rear seats are wider than average. There is no excessive or dangerous tossing or swaying motion as with some cars.

The Columbia two-speed axle (mentioned in the general comments above) can be installed by a *Ford* dealer for about $70. No overdrive is available. *Fords* may, however, be obtained with a 3.54—so-called "commercial"—rear axle without additional cost. This reduces the engine speed, increases gas and oil mileage. It cuts down the acceleration, and more gear shifting will be required in city driving. For cars which are not usually heavily loaded, or for coupes, this 3.54 axle is strongly recommended. With this axle the gas consumption factor is reduced from 62 to 53. The economy of the *Ford* can be further increased in summer by the use of smaller carburetor jets, with which dealers are supplied.

Plymouth De Luxe 6 (Chrysler Corp., Detroit)

F.O.B.-$660. Del'd. N.Y.C.-$785. Trunk Model-$20 Extra.

Taxable Horsepower-23.4.
Shipping Weight-2,820 pounds.
Overall Length-190 inches.
Brake Loading-17.8.
Gas Consumption Factor-57.

The $785 delivered price does not include the group of extra accessories ($17.50) with which most of these cars are shipped to dealers. Buyers may have to make a special order to get a car without them.

Although the price of the *Plymouth De Luxe 6* is higher than that of the *Ford Standard*, it gives considerably better gas mileage, being one of the most economical cars in the group in this respect. The driver's field of vision in the *Plymouth De Luxe*, both up and down and also to the rear, is good. The Lockheed hydraulic brakes take hold with a firm feel, and the car behaves well under them. The car steers easily, though the response to the turning of the steering gear is medium slow. It holds the road well and its riding qualities are good despite the fact that the rear seat has a slight tendency to toss. As with most Chrysler-made cars, the front edge of the front seat is very narrow, but the seat is considerably wider at the back. Unlike the *Dodge*, the *Plymouth* has a soft roof.

With respect to general characteristics, including even such factors as accessibility for repair, the *Plymouth* is the best compromise of the *Ford-Plymouth-Chevrolet* trio in their De Luxe models; for those doing considerable fast open-road driving, however, the *Ford* is probably preferable.

Also Acceptable

(In estimated order of merit)

Ford V-8 De Luxe (Ford Motor Co., Dearborn, Mich.)

F.O.B.-$625. Del'd. N.Y.C.-$748. Trunk Model-$25 Extra.
Taxable Horsepower-30.
Shipping Weight-2,850 pounds.
Overall Length-183 inches.
Brake Loading-15.3.
Gas Consumption Factor-62.

Except for differences in trim and upholstery, and extra equipment (horns, etc.), this car is identical with the *Standard Ford* discussed above. With the proviso that the new features mentioned under the *Standard Ford* should be obtained, this car is rated as *Also Acceptable.*

Chevrolet Master 6 (Chevrolet Motor Co., Div. of General Motors Corp., Detroit)

F.O.B., with Knee Action-$660. Del'd. N.Y.C.-$749.40. Trunk Model-$25 Extra.
Taxable Horsepower-26.3.
Shipping Weight-3,110 pounds.
Overall Length-185 inches.
Brake Loading-19.7.
Gas Consumption Factor-58.

The *Chevrolet* is reported to give relatively good gasoline economy. Oil consumption is low—for a reasonable length of time. The vision up and down from the driver's seat is fair, and to the rear, good. The rear seat is too narrow for three passengers to ride any distance in comfort.

The new hydraulic braking system on this car has not been proved by use and shows some defects in design. It is *Chevrolet's* own design and construction. Although the brakes stop the car well, it noses down badly, due to the "softness" of the front springs. With such "soft" springs, there is an increased tendency for the front wheels to develop shimmy after wear has developed.

The springs are, however, stiffer than in last year's models, so that the road-holding ability of the car is better than it was, though still somewhat questionable at high speeds. The car steers easily, and though the steering is slow it is not sufficiently so to be dangerous. It rides well in front and excellently in back, though with considerable slow motion.

The same car, without knee-action and without the excellent riding qualities it gives, costs $20 less. Many "bugs" have been removed from the knee-action unit since it was first adopted in 1934. The body, like all other bodies in General Motors cars, is still of composite steel and wood construction.

The *Chevrolet Master* is a good family car, its virtues being mainly good riding quality and general dependability. The car has smaller tires and also weighs more than its competitors.

Oldsmobile 6 (Olds Motor Works, Div. of General Motors Corp., Lansing, Mich.)

F.O.B.-$795. Del'd. N.Y.C.-$956. Trunk Extra-$25.
Taxable Horsepower-26.3.
Shipping Weight-3,179.
Overall Length-189 inches.
Brake Loading-16.7.
Gas Consumption Factor-64.

The vision both upward and downward is rather poor, that to the rear is good. The rear seat is narrow. The brakes apply easily and are powerful. Action of the car under braking is only fair because of the "softness" of the springs. The steering is easy, but the speed of steering is slow. The road-holding abilities of the car at high speeds on curving roads are questionable. The riding qualities are, however, excellent, only slightly better in front than in the rear. This is the only car in the group under $800 with the same system of individual front wheel suspension used on higher-priced and heavier cars. The *Oldsmobile* has for some years borne a good reputation. Because of its generally superior construction, its powerful brakes and good riding qualities, the *Oldsmobile* largely justifies its relatively high cost. It is probably the best buy for those who want a family car rather than one for fast road work, and to whom the comparatively high cost is not a major consideration.

Plymouth Business 6 (Chrysler Corp., Detroit)

F.O.B.-$590. Del'd. N.Y.C.-$708.50. No trunk available.
Taxable Horsepower-23.4.
Shipping Weight-2,750 pounds.
Overall Length-190 inches.
Brake Loading-17.3.
Gas Consumption Factor-58.

The economy of this car is good; vision is relatively good in all directions. What is said about braking and steering with respect to the *De Luxe Plymouth* applies to this car also. Since it does not have the flexible front springs with which the De Luxe model is fitted, however, the ride is only fair in the rear seat and not much better in front. Its road-holding ability at high speeds is, however, slightly superior. It is a "stripped" model with undersized tires, but for purposes of low-cost transportation it is a good buy.

COMPARISON TABLE

Average Delivered Price-$823
Max.-$995 (Auburn 654) — Min.-$536 (Willys 77)

Av. Taxable Horsepower-24.6
Max.-30 (Ford V-8) — Min.-15.6 (Willys 77)

Av. Shipping Weight-2784
Max.-3300 (Pontiac De Luxe 6) — Min.-2136 (Willys 77)

Av. Overall Length-180.5
Max.-206 (Hudson Custom 6) — Min.-164 (Willys 77)

Av. Brake Loading-17.8
Max.-22.75 (Graham Cav. 6-90A) — Min.-15.3 (Ford V-8)

Av. Gas Consumption Factor-60
Max.-68 (Studebaker Dict. 6) — Min.-41 (Willys 77)

Also Acceptable (continued)

Dodge 6 (Dodge Brothers Corp., Div. of Chrysler Corp., Detroit)

F.O.B.-$735. Del'd. N.Y.C.-$867. Trunk Extra-$25.

Taxable Horsepower-25.3.

Shipping Weight-2,923 pounds.

Overall Length-193 inches.

Brake Loading-18.4.

Gas Consumption Factor-61.

Good reports as to the gas mileage of this car are frequent, with few adverse reports. The front seat on this car, as on the *Plymouth*, is narrow at the front edge (44 inches). The vision upward from the driver's seat is very good; downward, only fair; to the rear, good. The action of the brakes is firm under the foot, and the car responds well to them, though they cannot be classed as extra-powerful. The brakes used on all Chrysler-made cars are Lockheed hydraulic, the type which is chiefly responsible for the good reputation hydraulic brakes have for dependable operation. The steering of the *Dodge* is easy and medium slow, but not dangerously so. The road-holding ability is good, partly because of the anti-sway bar at the front. There is, however, a slight tendency to toss the rear-seat rider. The accessibility for service and repair is fair, since the engine is of the 6-cylinder L-head type and the chassis is simple. The steel roof is set in and it is just as good as a one-piece roof, if not better. The *Dodge* is slightly better in some respects than the *De Luxe Plymouth*, though not enough better to warrant the difference in price.

Studebaker Dictator 6 (Studebaker Corp., South Bend, Indiana)

F.O.B.-$755. Del'd. N.Y.C.-$898. Trunk Model-$30 Extra.

Taxable Horsepower-25.4.

Shipping Weight-3,110 pounds.

Overall Length-193 inches.

Brake Loading-19.3.

Gas Consumption Factor-68.

Upward vision is only fair; downward and to the rear, slightly better. Seats are exceptionally wide, front and rear. The brakes apply easily, with a firm feel, and the car acts well under them. On hills, if the car is stopped with the brakes and the clutch held down, the car does not roll back when the brakes are released but remains where it is until the clutch is engaged. This feature, called a "hill holder," is mechanically simple and accessible and has some value for people for whom starting on a hill is difficult. The steering is easy, the speed of steering medium slow. The ability of the car to hold the road is very good with the standard springing; with the individual front suspension, which is offered for $20 extra, the ride, especially on the rear seat, is much improved, but this suspension is so soft as to offer considerable hazard in driving. The individual (planar) suspension is not, therefore, recommended. The body is all steel and is equipped with rain gutters, which most cars no longer have. The speedometer hand is visible with almost no distraction of attention from the road ahead.

An overdrive is available for $37.50, but it goes into operation only at the high speed of about 58 miles per hour, which makes it of doubtful value in ordinary use.

Terraplane De Luxe (Hudson Motor Car Co., Detroit)

F.O.B.-$670. Del'd. N.Y.C.-$809. Trunk Model-$20 Extra.

Taxable Horsepower-21.6.

Shipping Weight-2,770 pounds.

Overall Length-195 inches.

Brake Loading-17.9.

Gas Consumption Factor-60.

Although this car is called "De Luxe," it compares with standard models of other cars. The vision upward is good, downward, especially to the right, poor; to the rear, poor. The front seat ride is good, but the rear seat ride only fair. The front seat is narrow for three. The car's accessibility for repair is fair.

In case of failure of the hydraulic system, a separate set of rear brakes is applied mechanically by further motion of the brake pedal. This is a valid safety feature, provided the brake pedal is not set so high, as a result, that the driver has difficulty in shifting his foot quickly from the accelerator to the brake. Prospective buyers should check the difficulty of the movement for themselves. The car steers easily; the speed of steering is medium slow. Its road-holding ability is satisfactory.

Hudson-Terraplane bodies are entirely of steel; their front doors, however, open in front, catching the wind

Terms Used

Brake Loading: The number of pounds of car for each square inch of lining on the brake shoes. Low brake loading makes for safer and longer wearing brakes.

Gas Consumption Factor: The number of cubic inches of gas mixture drawn into the engine for each foot that the car travels. In general, for cars of the same weight, the car with the higher gas consumption factor will have the greater acceleration and top speed and show poorer economy.

Knee Action: A trade term applied to a type of front wheel suspension whereby each wheel is allowed to move up and down independently of the other.

Overdrive: Semi-automatic special gearing which goes into operation only at high car speeds, and which reduces the engine speeds, making for better gasoline and oil economy and less engine wear.

Gear Ratio: The number of turns made by the engine for each turn of the rear wheels.

Steering Ratio: The number of complete turns of the steering wheel which would be required to make one complete turn of the front wheels.

Compression Ratio: The extent to which the gas inside the cylinder is compressed before firing takes place. A compression ratio of 6 to 1 means that the gas in the cylinders is compressed before firing to one-sixth of its original volume.

Also Acceptable (continued)

when the car is in motion, a ludicrous exception to the safety features claimed for this car. The speedometer is located where a minimum shift of the eyes is required to read it.

A combination vacuum and electrically operated gearshifting device—the "Electric Hand"—is available for $22.75 extra. Its operation has been satisfactory, but the device is very complicated.

This car has been improved over a period of years, and it is felt that statements concerning its lack of durability in the past may be disregarded.

Terraplane Custom 6 (Hudson Motor Car Co., Detroit)

F.O.B.-$720. Del'd. N.Y.C.-$867. Trunk Model-$20 Extra.

Taxable Horsepower-21.6.
Shipping Weight-2,810 pounds.
Overall Length-195 inches.
Brake Loading-18.1.
Gas Consumption Factor-60.

This car compares with the de luxe models of other cars. It is the same as the *Terraplane De Luxe* except that it has a better trim and finish, and minor extra equipment.

Lafayette (Nash Motors Co., Kenosha, Wis.)

F.O.B.-$675. Del'd. N.Y.C.-$827. Trunk Model-$25 Extra.

Taxable Horsepower-25.3.
Shipping Weight-2,950 pounds.
Overall Length-189 inches.
Brake Loading-16.7.
Gas Consumption Factor-61.

The upward vision is good; downward, good; to the rear, fair. The *Lafayette* has an all-steel body with corner posts that somewhat interfere with the vision. The brakes act powerfully, and the car behaves well when they are applied. The steering is easy, the speed of steering medium slow. The roadability is good, partly because of the wide tread (58 inches front, 60.25 inches rear). The springs are fitted with rubber covers, the durability of which is questionable. The riding qualities front and rear are good, but with considerable slow motion. Accessibility of engine and chassis is good. An overdrive is to be had for $37.50 extra. The back panel of this car is solid when no trunk is fitted, so that the spare tire must be hauled out across the rear seat! However, this is a well-planned and sensible car in most respects.

Chevrolet Standard 6 (Chevrolet Motor Co., Div. of General Motors Corp., Detroit)

F.O.B.-$575. Del'd. N.Y.C.-$674.50. Trunk Extra-$25.

Taxable Horsepower-26.3.
Shipping Weight-2,775 pounds.
Overall Length-180 inches.
Brake Loading-17.5.
Gas Consumption Factor-59.

Vision is fair upward and downward, good to the rear. The brake action is fair; the car does not behave as well under braking as the *Master Chevrolet* and has only fair road-holding qualities. Steering is medium easy and speed of steering medium slow. The *Standard* has conventional springs, not "knee action" as on the *Master*, and riding is only fair on the front seat and poor on the rear seat. The *Chevrolet Standard* is a good economy value.

Graham Cavalier 6-90 (Graham-Paige Motors Corp., Detroit)

F.O.B.-$795. Del'd. N.Y.C.-$953. Trunk Model-$30 Extra.

Taxable Horsepower-25.3.
Shipping Weight-2,995 pounds.
Overall Length-194 inches.
Brake Loading-18.6.
Gas Consumption Factor-64.

The engine is very quiet and its accessibility is fair. The chassis is simple and easy to get at. Upward vision is good, downward only fair, and to the rear, good. The action of the brakes is good, and the car behaves well under them. This car steers easily and medium slow. The road-holding ability is good and so are the riding qualities. The body is of steel, with the rear door—called a "safety door"—hinged at the front and opening against the wind, so that it will not easily open when the car is in motion. An overdrive is available for $50 extra.

Graham Crusader 6-80 (Graham Paige Motors Corp., Detroit)

F.O.B.-$665. Del'd. N.Y.C.-$800. Trunk Model-$30 Extra.

Taxable Horsepower-21.6.
Shipping Weight-2,680 pounds.
Overall Length-186 inches.
Brake Loading-21.3.
Gas Consumption Factor-53.

The engine is small and accessible. The brake loading is heavy, but the brakes apply with a firm feeling and their stopping power is good. The car behaves well under braking. It steers easily and fast, and its ability to hold the road is fair at all moderate speeds. The body on this car is a composite wood and steel type with a soft roof. The seats in the *Graham Crusader* are rather narrow. The upward vision is only fair, the downward vision good, and that to the rear, poor. The front seat rides well, the rear seat fairly well. The trunk on this model is awkwardly aranged. There is some engine roar in this car, but the car is easy to handle and responsive. Available records indicate that this car is economical to operate.

Graham Crusader 6-80A (Graham Paige Motors Corp., Detroit)

The *Graham Crusader 6-80A* model has trim inferior to that of the *6-80*, and smaller tires, which raises its gas consumption factor to 54. Its delivered price is $54 less.

Graham Cavalier 6-90A (Graham-Paige Motors Corp., Detroit)

F.O.B.-$745. Del'd. N.Y.C.-$880. Trunk Model-$30 Extra.

Taxable Horsepower-25.3.
Shipping Weight-2,865 pounds.
Overall Length-194 inches.
Brake Loading-22.75.
Gas Consumption Factor-61.

The engine of this model is smaller than that of the *Cavalier 6-90* and the car has a higher gear ratio. The brakes have only about 75% as much braking area, giving the *6-90A* the highest brake loading of any car listed. The trim is also inferior to that of the *6-90*.

Also Acceptable (continued)

Pontiac Master 6 (Pontiac Motor Div., General Motors Corp., Pontiac, Mich.)

F.O.B.-$720. Del'd. N.Y.C.-$853. Trunk Model-$25 Extra.
Taxable Horsepower-27.4.
Shipping Weight-3,235 pounds.
Overall Length-189 inches.
Brake Loading-21.8.
Gas Consumption Factor-63.

Vision upward and downward is fair, that to the rear good. The rear seat is very narrow. The brakes hold well and apply easily. The steering is medium hard and medium fast. The ability of the car to keep the road is fair, the riding quality good in front and fair in the rear seat. It is rather easy on this car to touch the starter pedal in applying the brake.

Nash 400 Standard (Nash Motors Co., Kenosha, Wis.)

F.O.B.-$740. Del'd. N.Y.C.-$890. Trunk Model-$25 Extra.
Taxable Horsepower-27.3.
Shipping Weight-2,970 pounds.
Overall Length-191 inches.
Brake Loading-16.8.
Gas Consumption Factor-66.

Body dimensions are the same as those of the *Lafayette*. It has a more powerful engine of more recent design. The hood, with the attached radiator grille, lifts up in front. Since it is longer than that on the *Lafayette*, downward vision is poorer. The road-holding ability of this car is slightly inferior to that of the *Lafayette*, but all other comments in regard to steering and riding are the same. Accessibility is, if anything, superior. The same criticism of sedan without trunk applies as with the *Lafayette*. The overdrive is $37.50 extra. As with the *Lafayette*, the body is all steel and the corner posts also impair the vision somewhat.

Apparently this car is being replaced by the *Nash 400 De Luxe*, although it is still in production and available on order. The *De Luxe* model has the conventional type of hood, but otherwise differs only in having better finish and upholstery and the usual extra windshield wipers, sun visors, etc. It is slightly heavier, and has a $27 higher New York City delivered price.

Hudson Custom 6 (Hudson Motor Car Co., Detroit)

F.O.B.-$785. Del'd. N.Y.C.-$937. Trunk Model-$20 Extra.
Taxable Horsepower-21.6.
Shipping Weight-2,880 pounds.
Overall Length-206 inches.
Brake Loading-18.6.
Gas Consumption Factor-60.

The front seat is narrow for three people. The upward vision is good; the vision downward, especially to the right, poor; the vision to the rear, poor. With the exception of a slightly better rear seat ride, other characteristics of the *Hudson 6* are similar to the *Terraplane*. The brakes are good in action despite the high loading and the car, due partly to the front "radius rods," is very steady when the brakes are applied.

This car is admitted to be only a longer and more dressed up *Terraplane*, for which one pays $128 extra.

> *None of the new medium- or low-priced cars are constructed for long life and hard usage and even the cars listed as* Best Buys *will develop faults, and require more or less frequent repair. Finish on many of the new cars does not stand up; rattles and squeaks develop early in the life of the car.*
>
> *To see what might be expected of cars with respect to durability and construction one need only compare them with the better makes of taxicabs. Taxicabs which have rolled up a hundred thousand miles show less wear and are giving better service than passenger cars that have been driven fifty thousand miles or less. The extra cost of the taxicab far more than pays for itself.*
>
> *Manufacturers have deliberately cheapened their cars so that they will not last too long. Said Alfred P. Sloan, president of General Motors, at a meeting in Seattle recently: "In order to make more people purchase more cars, we build cars so that it will last the average person four or five years. This provides for a greater turnover of automobiles, labor and raw materials."*

Not Acceptable

Pontiac De Luxe 6 (Pontiac Motor Div., General Motors Corp., Pontiac, Mich.)

F.O.B.-$770. Del'd. N.Y.C.-$924. Trunk Model-$25 Extra.
Taxable Horsepower-27.4.
Shipping Weight-3,300 pounds.
Overall Length-189 inches.
Brake Loading-22.4.
Gas Consumption Factor-63.

This car has better trim than the *Pontiac Master* and is equipped with knee action. It is heavier than the *Master* and the brake loading is increased in consequence. Vision is the same. Although the brake loading is heavy, the brakes apply easily and are sufficiently powerful, but the car noses down badly under them. The car rides very well on both front and rear seats, but the suspension is so flexible that the handling of the car at high speed or on corners is decidedly tricky and unsafe.

Willys 77 (Willys-Overland Co., Toledo)

F.O.B.-$415. Del'd. N.Y.C.-$536. De Luxe Model With Trunk-$595. Del'd. N.Y.C.
Taxable Horsepower-15.6.
Shipping Weight-2,136 pounds.
Overall Length-164 inches.
Brake Loading-15.9.
Gas Consumption Factor-41.

The seats are narrow—43 inches front and rear. Upward visibility poor;

downward, fair; to the rear, poor. The brakes are mechanical; their action, and that of the car when they are applied, fair. Steering is relatively hard, but fast. The car holds the road only fairly well and rides poorly in front and rear. *Acceptable* only for semi-commercial use or in the hands of owners who are mechanically able to make repairs. (Service facilities are extremely limited.) The car is capable of very economical operation.

The maker is now in the hands of receivers, which, from the point of view of depreciation and repairs, is a strong argument against the purchase of a *Willys*.

Auburn 654 (Auburn Automobile Co., Auburn, Ind.)

F.O.B.-$795. Del'd. N.Y.C.-$995. Trunk Model-$33 Extra.

Taxable Horsepower-22.5.
Shipping Weight-3,279 pounds.
Overall Length-193 inches.
Brake Loading-22.5.
Gas Consumption Factor-64.

The engine, a six, does not run very smoothly and is noisy. Its accessibility is fair. A long hood crowds the body to the rear of the chassis and impairs the vision downward. Otherwise the vision is good. The car has a low center of gravity and behaves fairly well. The steering is easy and medium fast, the ability to keep the road is fair. The car rides well in front and poorly on the back seat. The Columbia two-speed axle (mentioned in the general comments at the beginning of this article) is available in the *Auburn* at $70 extra. The trunk space is small. The service facilities on this car, nationally, are poor, and the policy of the manufacturer with respect to design changes has in the past been unstable. The price is high.

The Automobile Industry's Workers

LABOR CONDITIONS IN THE AUTOMOBILE industry have been notoriously bad for years. Only recently has there been marked hope of improvement through general unionization.

A year ago federal investigators reported to President Roosevelt that the speed-up system was taxing workers beyond the limits of human endurance. Hardboiled foremen, the President was told, drive the employees relentlessly; any man who slackens his pace is reminded that there are plenty of candidates for his job waiting at the factory gate.

Labor-saving machinery has added to the line of unemployed year by year. To produce 100 8-cylinder blocks five years ago, one manufacturer employed an assembly line of 250 men; today only 19 men are needed and their output is 250 blocks instead of 100. In 1929, the labor cost on an automobile door was $4.00; six years later the cost had been reduced to 15 cents.

Labor Cost in Autos

For an automobile priced at $723, the labor cost was estimated in 1929 to be only $66—barely 9 per cent. Yet there is an inspired myth that payment of decent wages would boost prices sharply and penalize the consumer. The last annual report of the Chrysler Company, one of the industry's Big Three, shows exactly who would be penalized. During 1935 the company had a *net* profit of $34,900,000—a return of more than 30 per cent on its invested capital. And it pays much better to be Mr. Knudsen of General Motors than to be Mr. Roosevelt of the White House. There is no depression among the leading automobile manufacturers today.

Out of fairness it must be noted that hourly earnings are probably higher in the automobile factories than in any other mass-production industry. Weekly pay averaged as high as $29 during the high-production month of April, 1935. The catch is that annual earnings are low, because of seasonal employment. In one company, 32 per cent of the workers earned less than $400, the government inquiry revealed last year. Seldom do they find other work to supplement their earnings. The high-paid auto workers are forced to go on relief.

Automobile workers don't last long, thanks to the speed-up system. They are considered old at forty; and if they get work after reaching that age, they regard it as borrowed time. Strangely enough, an employee is seldom discharged. He is merely laid off, and told to report later. Often he is given false encouragement week after week; finally, after seeing other men go back to work, he realizes that he is through. This system is not thoughtless cruelty. It helps to maintain the line of unemployed at the gate.

Age, of course, is not the only reason for dismissal. Thousands of competent mechanics will never again punch a time-clock in any factory because they have been blacklisted for union activity. The automobile industry has an espionage system that works night and day, without any layoffs. Company spies, placed by private detective agencies in jobs as ordinary mechanics, report conversations at lunchtime and discussions at union meetings. Often they collect evidence by feigning a militant attitude and encouraging criticism of the company.

The manufacturers have arranged for interchange of data on their employees' labor records. If a foreman, motivated by either spite or the reports of spies, writes "agitator" (either as such or in code) on the card of a dismissed workman, the man will never work at his trade again.

Company Unions

Company unions became strongly imbedded throughout the industry upon the advent of *NRA*. The manufacturers showed more haste than propriety in getting their employees organized safely. One concern took only half a day to introduce the company union to its employees and get it adopted by formal ballot, with a ready-made constitution and all the other accessories. Some of the com-

pany unions functioned with remarkable smoothness, getting prompt satisfaction on such grievances as the overly thin slices of ham served in sandwiches at the company cafeteria, and the unsanitary condition of toilets. But when it was a matter of general increase of wages and reduction of the work load—well, the company unions never came to those things. In disgust, large numbers of workers turned away from "employees' representation" plans as they discovered that only the company's interests were represented.

That the employees have been able to make any progress toward unionization would seem a miracle. Yet they have—and they have even won strikes. It is probably correct to say that between a quarter and a half of the auto workers belong to legitimate trade unions. The oldest of these organizations is the Mechanics Educational Society of America (MESA), originally for tool and die workers but now including all kinds.

Two younger unions are the independent Associated Automobile Workers of America, which is concentrated in the Hudson plant and withdrew from the American Federation of Labor in 1934; and the Automotive Industrial Workers Association, which grew out of *NRA* machinery set up in the Dodge plant of the Chrysler Company. These two unions combined last fall with MESA as the Industrial Automobile and Metal Workers Union.

Automobile Workers Union

Finally there is the new United Automobile Workers Union set up by President Green of the American Federation of Labor and functioning as a semi-industrial union. With the recent election as international president, of the progressive Homer Martin, plus the support of John L. Lewis' Committee on Industrial Organization, this union is moving forward apace. Most significant news is that an early merger of the Associated Automobile Workers of America and the Automotive Workers Industrial Association with President Martin's union seems certain; and the veteran Mechanics Educational Society may go along, too. Many of its members have already joined the United Automobile Workers Union, according to the latter organization. The Associated Automobile Workers of the Hudson plant have just obtained a charter from the United.

Confusion due to the existence of four separate unions in the industry has not aided, of course, in the growth of union strength. The present steps for consolidation bring much closer the dream of a union—or closed—shop, which would replace with a regular contract the semi-official bargaining that is the greatest achievement to date. It is likely that 1937 will be the critical year for automobile workers, since they are preparing now for a test of their combined strength. Meanwhile, there is no such thing as a union-made automobile.

The Companies

Turning from the general picture to specific firms, the following notes on union development and company policies may be offered:

Auburn-The manufacturers have not granted union recognition.

Chevrolet-Employees of the Chevrolet Motor Company (General Motors) plant in Toledo are well organized, and there is considerable strength in other Chevrolet factories. General Motors Corporation, after the big Chevrolet strike of 1935, was forced to confer with union representatives, but there is yet no written contract. The company was quick to install company unions after the birth of the *NRA;* employees soon became disillusioned. The company's report this month to the Securities and Exchange Commission revealed payment of $167,586 to Pinkerton National Detectives in 1935 for "plant protection." Pinkerton's is well known for strike-breaking and espionage.

Dodge-The Automotive Industrial Workers Association is strongly established in the Dodge Brothers (Chrysler) plant, where it originated. The parent Chrysler Corporation confers with employee representatives, although it was one of the leaders in promoting company unions in 1933.

Ford-The Ford Motor Company has been frequently and justifiably denounced for a brutal labor policy, backed up with machine guns and gangsterism when deemed necessary, and camouflaged with smiling paternalism. Johannes Steel, author and foreign editor of the *New York Post,* has charged that Ford gave approximately $300,000 by direct and indirect means to further Hitler's campaign for the dictatorship of Germany.

Lafayette-Made by Nash Motors Company. See notes under *Nash.*

Graham-Independent unionism strong.

Hudson-A strong union exists in the Hudson Motor Car plant, despite the fact that a company union plan was pushed vigorously in 1933.

Nash-The manufacturers, Nash Motors Company, have given what amounts to union recognition, but have sidestepped a contract.

Oldsmobile-Made by Olds Motor Works division of General Motors. See notes on General Motors under *Chevrolet.*

Plymouth-Made by Chrysler Corporation, whose vice-president, P. C. Sauerbrey, wrote last year to every employee pointing out with the utmost gentleness that it was unnecessary to join outside unions. See notes on Chrysler Corporation under *Dodge.*

Pontiac-Made by Pontiac Motor Division of General Motors. See notes on General Motors under *Chevrolet.*

Studebaker-The Studebaker Corporation's policy is tantamount to union recognition; but, as with Nash Motors, a contract has been avoided. Union membership is practically 100 per cent.

Terraplane-The manufacturers, Hudson Motor Car Company, showed enterprise in establishing company unionism three years ago.

Willys-Union recognition has been given. This machine is practically union-made.

GASOLINES

Ratings of 32 brands of gasoline based on starting and accelerating ability, tendency to cause vapor lock, to form gum, to dilute crankcase oil, and on other characteristics.

THERE IS LITTLE DIFFERENCE AMONG most gasolines—in the "regular" grade that the average motorist buys—in anti-knock, starting and acceleration characteristics.

Advertising slogans such as "Triple-Action," "99,000,000 Foot-Pounds Per Gallon," "21.9 Miles Per Gallon," and "Highest Octane Rating at Its Price" are meaningless as a basis for buying gasoline.

Many third-grade gasolines, available in some areas, will give satisfactory service in most cars at savings of from 5 to 15 percent in gasoline costs.

These are some of the conclusions to be drawn from Consumers Union analyses of 32 brands of gasoline. Samples were purchased at filling stations in the Far West, the Middle West and the East. The analyses show that it will pay the motorist to experiment with less expensive, third-grade gasolines until one is found which gives satisfactory service. Not every section of the country, however, has third-grade gasolines for sale; in many places only the premium and regular grades are marketed.

Third Grade Gas

Third-grade gasolines are not always sold as such; the motorist should look for the gasoline selling at lower price than the regular grade. (The trade classifies premium gasolines as first grade and regular gasolines as second grade.)

It is well to try any cheap gas that does not cause excessive knocking. Contrary to advertising precept, a little knocking does no harm. Most cars run satisfactorily with gasolines having an octane (anti-knock) rating as low as 60. Although it is conceivable that the engine might be damaged by gasoline with an octane rating of 50 or lower, few of the poorest third-grade fuels have such low anti-knock values.

In selecting samples for this test, an attempt was made to get as many third-grade brands as possible, but they have become increasingly scarce. The third-grade gasolines included in this report were obtained in the Middle West and the Far West. It was possible at this time to cover only a small part of all the gasolines available.

The Tests

An essential part of the test was distillation, to determine how much of each gasoline vaporized at different temperatures. Other tests were made for gum content, possible corrosive action, and, with the third-grade brands, octane ratings. Some of the gasolines had excessively high gum content, increasing the likelihood of carbon formation and of valve and carburetor trouble. For the regular grades, octane ratings were not made since all widely sold brands have sufficiently high numbers (usually between 68 and 70) to meet the requirements of almost all automobile engines.

From the distillation data it was possible to determine (1) quick-starting ability, (2) accelerating ability, referred to in listings as acceleration, (3) tendency to dilute crankcase oil, and (4) temperature at which vapor lock (the formation of bubbles in the gasoline line, obstructing flow of gasoline) is likely to occur. All of the samples were found to be sufficiently non-corrosive. In the listing below, mention is made only of variations sufficiently pronounced to deserve attention from the motorist. Samples bought in the East are marked with the letter *E;* Middle West, *MW;* and Far West, *W*. The price given is for one gallon and includes the various state and federal taxes. When using the ratings as a buying guide, Consumers Union members should keep in mind the fact that even the same brand of gasoline may vary in composition and price from region to region.

The Consumers Union staff will welcome suggestions from members on other brands for future tests. It may not be possible to test every gasoline suggested, but the staff will try to report on all widely sold brands.

Most of the regular gasolines contain tetra-ethyl lead. This compound is added to increase the octane rating of gasoline. As suggested in a previous article ("The High Cost of Octanes" May, 1936 issue of CONSUMERS UNION *Reports*), it is probably well to avoid the use of leaded gasoline where satisfactory non-leaded gasolines are available. It will be noted that of the samples picked up in the Middle West one containing lead (*Co-op* Regular) was listed as a *Best Buy* only because the other samples purchased in that region were not satisfactory in other respects.

Non-Leaded Gasoline

A list of non-leaded gasolines sold in the various states, claimed to have been tested for stability and gum content, and approved for use in gasoline lamps, stoves, and similar appliances is available without charge from United Laboratories, 240 North St. Francis Street, Wichita, Kansas. Copies may also be obtained from Consumers Union. Consumers should write for this list to aid them in securing gasolines safe for use in appliances, as well as in purchasing the less expensive non-leaded gasolines for their automobiles.

The ratings of the gasolines follow:

GASOLINES

Best Buys

WEST—PACIFIC COAST

Peerless Third Grade (*W*) (Signal Oil and Gas Co., Los Angeles) 16c. Somewhat below desirable standard for acceleration. Tendency to dilute crankcase oil somewhat greater than desirable limit. Good with respect to other qualities. Anti-knock rating (62) satisfactory.

Flight Third Grade (*W*) (Standard Oil of Calif., San Francisco) 16c. Comments on *Peerless* apply. Anti-knock rating (63) satisfactory.

Flash Third Grade (*W*) (Richfield Oil Corp., Los Angeles) 16c. Comments on *Peerless* apply. Anti-knock rating (62) satisfactory.

White Magic Third Grade (*W*) (Union Oil Co., of Calif., Los Angeles) 16c. Comments on *Peerless* apply. Anti-knock rating (63) satisfactory.

MIDDLE WEST

Co-op Regular (*MW*) (Blender: Consumers Cooperative Ass'n., Kansas City, Mo.) 17.8c. Contained lead. Less than average tendency to vapor lock. Satisfactory as to starting, acceleration, and dilution characteristics.

EAST

Cities Service Regular (*E*) (Crew Levick Co., Phila.) 17c. Average or above with respect to all qualities.

Also Acceptable

(In order of merit)

Tydol Regular (*E*) (Tide Water Oil Co., N.Y.C.) 16c. Contained lead. Tendency to vapor lock somewhat greater than desirable standard. Satisfactory as to other qualities.

Gilmore Blu-Green Third Grade (*W*) (Gilmore Oil Co., of Calif., Los Angeles) 16c. Somewhat below desirable standard for acceleration. Tendency to dilute crankcase oil and to vapor lock somewhat excessive.

Sinclair Regular (*E*) (Sinclair Refining Co., N.Y.C.) 17c. Contained lead. Tendency to vapor lock somewhat excessive. Some lubricating oil found in sample.

Gulf Regular (*E*) (Gulf Refining Co., Pittsburgh) 17c. Contained lead. Tendency to vapor lock somewhat excessive. Other qualities about average.

Conoco Regular (*E*) (Continental Oil Co., Ponca City, Okla.) 17c. Contained lead. Below desirable standard for acceleration. Tendency to vapor lock slightly excessive.

Texaco Regular (*E*) (Texas Co., N.Y.C.) 17c. Contained lead. Below desirable standard for acceleration. Tendency to vapor lock somewhat excessive.

Sunoco Regular (*E*) (Sun Oil Co., Phila.) 17c. Showed greatest tendency to vapor lock of all samples tested.

Essolene Regular (*E*) (Standard Oil Co., of N. J., N.Y.C.) 17c. Contained lead. Below desirable standard for acceleration. Some tendency to vapor lock. High gum content. Sample contained lubricating oil.

Amoco Premium (*E*) (American Oil Co., Baltimore) 19c. Benzol blend. Ranked highest of all samples tested, but extra quality not worth the high price.

White Gold Third Grade (*W*) (Associated Oil Co., San Francisco) 16c. Below desirable standard for acceleration. Tendency to dilute crankcase oil and to vapor lock somewhat excessive. Anti-knock rating (63) satisfactory.

Metro Third Grade (*W*) (General Petroleum Co., of Cal., Los Angeles) 16c. Comments on *White Gold* apply. Anti-knock rating (64) satisfactory.

Cal-Pet Third Grade (*W*) (Texas Co., Los Angeles) 16c. Below desirable standard for acceleration. Tendency to dilute crankcase oil excessive. Anti-knock rating (62) satisfactory.

Also Acceptable (continued)

Hancock Regular Third Grade (*W*) (Hancock Oil Co., of Cal., Long Beach) 16c. Below desirable standard for acceleration. Tendency to vapor lock and dilute crankcase oil excessive. Anti-knock rating (62) satisfactory.

Green-Streak Third Grade (*W*) (Shell Oil Co., San Francisco) 16c. Comments on *Hancock Regular* apply. Anti-knock rating (64) satisfactory.

Shell Regular (*E*) (Shell Eastern Petroleum Products Corp., N.Y.C.) 16c. High gum content. Good with respect to other qualities.

American Regular (*E*) (American Oil Co., Baltimore) 17c. Tendency to vapor lock excessive. High gum content.

Phillips Unique Third Grade (*MW*) (Phillips Petroleum Co., Bartlesville, Okla.) 16.8c. Comments on *Hancock Regular* apply. Anti-knock rating (53) too low for high-compression engines in most of the newer cars.

Silver Shell Third Grade (*MW*) (Shell Petroleum Corp., St. Louis) 16.3c. Somewhat below desirable standard for acceleration. Anti-knock rating (53) too low for satisfactory operation in high-compression engines.

Stanolind Third Grade (*MW*) (Standard Oil Co., of Indiana, Chicago) 16.8c. Comments for *Silver Shell* apply. Anti-knock rating (54) somewhat too low for satisfactory operation in high-compression engines.

Sinclair U. S. Motor Specification Third Grade (*MW*) (Sinclair Refining Co., Des Moines) 16.8c. Comments on *Silver Shell* apply. Anti-knock rating (52) too low.

Not Acceptable

Phillips 66 Regular (*MW*) (Phillips Petroleum Co., Bartlesville, Okla.) 17.8c. Contained lead. Excessive tendency to vapor lock. Gum content very high.

Not Acceptable (continued)

Texaco Indian Third Grade (*MW*) (The Texas Co., Des Moines) 15.8c. Acceleration below desirable standard. Tendency to dilute crankcase oil excessive. Anti-knock rating (50) too low for high-compression engines.

Conoco Demand Third Grade (*MW*) (Continental Oil Co., Ponca City, Okla.) 15.8c. Below desirable standard for acceleration. Tendency to dilute crankcase oil excessive. Anti-knock rating (51) too low for high-compression engines.

Skelly Powermax Third Grade (*MW*) (Skelly Oil Co., Tulsa, Okla.) 15.8c. Somewhat below desirable standards for starting and acceleration. Tendency to dilute crankcase oil excessive. Anti-knock rating (50) too low for high-compression engines.

Cities Service Motor Third Grade (*MW*) (Cities Service Oil Co., Bartlesville, Okla.) 15.8c. Unsatisfactory as to ease of starting and acceleration. Anti-knock rating (45) much too low for satisfactory operation in high-compression engines.

Mid Continental Power Third Grade (*MW*) (Mid-Continent Petroleum Corp., Tulsa, Okla.) 15.8c. Very poor starting qualities. Acceleration below desirable standard. Anti-knock rating (45) much too low for satisfactory operation in high-compression engines.

LABOR NOTES

Standard Oil—The various Standard Oil companies have never enjoyed a reputation for humane consideration of employees' rights. Many Easterners recall the years 1915–16, when Standard Oil Company of New Jersey unleashed Bergoff guards and sheriff's men in strikes at the Bayonne refinery. Result, six strikers killed, many wounded. After the workmen had buried their dead, Standard Oil organized a company union. In 1929, Standard Oil Company of New York took the leadership in breaking a strike of 3,000 gas and oil truck drivers in New York City. Peter De Vito, notorious strikebreaker, collected $250,000 from Standard Oil for his services; the strikers collected innumerable wounds from blackjacks, knives, and guns.

Sinclair—Two years ago Sinclair Refining Company set a precedent among major oil companies by signing a contract with the Metal Trades Department of the American Federation of Labor, representing thirteen member unions.

Shell—Latest word from California is that employees of Shell Oil Company are demanding a union agreement. The company has hitherto signed a memorandum with a committee representing the workers, but has refused to give formal recognition to the union.

Texas—The Texas Company has actively promoted company unionism. During a 1934 strike near Dallas, the Company answered a demand for union recognition by hiring guards and getting an injunction.

Phillips—Phillips Petroleum Company has tried to impose a company union on its employees, according to findings by the Petroleum Labor Policy Board, *NRA* agency. The company has also attempted to keep its workers from joining legitimate unions.

The Bakers' Subtract and Divide

THE TROUBLE WITH BREAD IS THAT *modern milling methods have removed natural minerals and vitamins from the wheat. Result: The per capita consumption of bread has fallen from 230 pounds in 1900 to 160 pounds in 1935, and it will probably drop to 130 pounds in the next few years.*

This blast was *not* fired by a militant consumers' organization. Neither did it come from an exposé in a radical magazine. Strange as it may seem, the sponsor of this accusation is Dr. A. J. Pacini of the Commander Larabee Milling Company, Minneapolis.

Dr. Pacini spoke frankly to 300 worried bakers assembled last March 30 at a convention called in Boston by his company. As told in *Food Field Reporter*, trade paper of the food and grocery industry, his speech had nothing to do with prunes, honey, laxatives, sunshine, and other innovations that have produced a loaf streamlined for digestive harmony (so the advertisements say).

Getting away from such fol-de-rol and knuckling down to essentials, Dr. Pacini told the bakers that in 1870, "milling processes changed and from that time until now the per capita consumption of flour has dropped steadily." He declared:

"The same thing happened to wheat in 1870 that happened to rice four generations ago. They removed the husks from rice by polishing it and thereby produced the deficiency disease, beri-beri, which has been responsible for more deaths than all the Asiatic encounters during that entire period of time. It required the nutrition experts and doctors of the world nearly 100 years to find out what the trouble was.

"In 1870 we did exactly the same thing to wheat. It also took years, in that case, to find out what the results would be, but already we know that the public has constantly rejected more and more flour year by year, and thus we had to have merchandising conferences to find ways to sell them more wheat.

Dr. Pacini (whose company sells *Sunfed* bread) left no loose ends in his indictment of his own industry. Nor was there anything hazy in his argument for restoration of the native minerals and vitamins of Lincoln's time—before science found the way to make a phantom loaf.

But "science" can still find a way to sidestep Dr. Pacini's simple suggestion. It was Peter G. Pirrie, engineer, and editor of *Baker's Weekly*, who told the Boston bakers what they could do about the public's refusal to buy bread; and here's the solution: Many people habitually take one slice of bread with their meals. If the baker's loaf is 12 inches long with slices ⅜-inch thick, there will be 32 slices. Now, suppose the shape of the loaf is altered without changing the total weight—the loaf can be made only 10 inches long and the slices ½-inch thick. That means only 20 slices to the loaf and if the family sticks to its one-slice habit, 60 per cent more bread will have to be purchased.

for MOTHS

Enough Odora to mothproof a closet would cost $24, and it probably wouldn't work; but you can mothproof a chest with naphthalene for 15c. This article tells you how to protect your woolens from moth damage.

It Has Been Estimated That Moth worms destroy over one-quarter billion dollars worth of clothing and other household textiles in a year. Much of this loss is due to neglect, but a large proportion results from dependence upon worthless proprietary substances and methods whose chief appeal is their ease of use. There is no easy and sure method of eliminating moths, and only a very careful preparation and constant vigilance will keep them out of woolen and fur garments.

Thorough washing or dry cleaning will destroy any eggs or larvae already in the clothing; but if such procedure is not followed, the garments should be thoroughly brushed and exposed to the sun for several hours before they are stored. One of the simplest methods for protecting a few garments is to place them in an unbroken paper bag. The bag must be tight, as even the slightest tear or opening will allow the moths to enter. This method is worse than no method at all if moths in any stage of their development happen to be in the garments when they are stored. As an additional safety measure it is well to sprinkle moth balls or crystals freely through the garments before wrapping. The vapor from the balls will pass through the paper readily, unless it is the heavy, treated kind, but it should not be necessary to add more moth balls if the bag is tight, since any moths in the garments will be killed, and no new ones can enter. Moth-free clothes may be adequately protected if wrapped in several layers of newspaper or ordinary wrapping paper. Care must be taken, however, to fold back the ends of the paper on themselves so that no openings remain through which moths can crawl in.

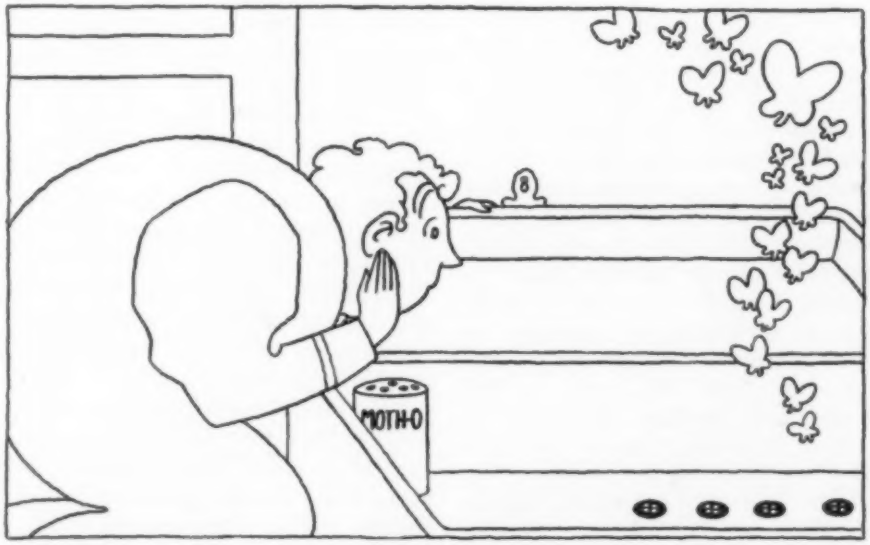
For ordinary household purposes tight boxes, trunks and chests will be found to be the safest place to store fur coats and woolen clothes when such garments are sprinkled freely with balls or crystals of naphthalene or paradichlorobenzene or gum camphor (*see Best Buys* and *Also Acceptable* for amounts to be used).

Cedar chests and cedar-lined closets are as a rule not much more effective than a good trunk or a tight box. Cedar wood soon loses its protective value because the volatile oils are quite rapidly dissipated. Cedar odor alone is no proof that the box is still potent as a moth repellent or destroyer. A new box or closet made of red cedar heart wood will give adequate protection for a time, but dependence should not be placed on them after two or three years' use. After that the method as outlined above for ordinary chests should be used.

All of the moth-proofing spray solutions will be found ineffective unless they are applied with a spray gun powerful enough to force the solution into contact with moth larvae or eggs on the fabric or unless the garment is dipped into the solution so that the moth eggs or worms are actually covered with the liquid. Many of the liquid sprays should not be used on certain types of garments because of their tendency to stain. *Larvex*, for example, will stain silk, satin, cotton, and linen fabrics. Plain gasoline and kerosene are very good contact insecticides but represent a serious fire hazard particularly when applied with a spray gun.

Fumigation

There are several methods of fumigating which are effective when properly used. Because of the special technique necessary, however, it is not advisable for the average householder to use such methods. If it is necessary to rid your home of moths and other insects, you should either hire a competent exterminator or else carefully follow the instructions as given in such publications as Farmers' Bulletin 1353, *Clothes Moths and Their Control* (5c.), and Farmers' Bulletin 1655, *The Control of Moths in Upholstered Furniture* (10c.). Order from the Superintendent of Documents, Washington, D. C. For those who can afford it and who have numerous expensive garments to protect, putting them in cold storage is also dependable. There are a number of storage firms supplying vaults where fur coats, rugs and furniture may be fumigated and stored until wanted.



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Now, Was That Johnnie's Suit or Fred's Winter Coat?

MOTH PREVENTIVES

Best Buys

Naphthalene flakes and balls. Purchase in bulk from your drug store or chemical supply house, or in pound boxes at a 5-and-10-cent store. Should not cost more than 15c. a lb. Distribute between layers of clothing in an *air-tight* box or chest. Use about 1 lb. to each 6 to 10 cubic feet. Flake form evaporates more rapidly than balls and cakes and is therefore more effective but does not last as long.

Paradichlorobenzene flakes and crystals. Purchase as above. Not over 50c. per lb. 5-and-10-cent stores sell ½ lb. boxes for about 20c. Somewhat more rapid in action than naphthalene and to some the odor is less objectionable. Sprinkle on clothes in a tight container. Use about 1 lb. to each 20 to 30 cubic feet. Neither paradichlorobenzene nor naphthalene will protect your garments after the flakes or crystals have completely evaporated, unless a sealed container for the garments is used so that there will be no opening where moths can enter.

Also Acceptable

Gum camphor. Purchase as above. About 75c. per lb. Break into small pieces and distribute throughout clothing which must be stored in an *air-tight* space. Use about 1 lb. to each 5 to 8 cubic feet.

Pyrethrum powder. Never buy from drug stores; freshness of stock cannot be depended on. Purchase from fresh stock of seed or insecticide companies. (Frost Insecticide Co., Arlington, Mass. fills mail orders for small amounts.) About 60c. per lb. for .9% pyrethrins. Garments should be thoroughly dusted with powder as this is a contact insecticide and like all pyrethrum powders and sprays has no "moth proofing" properties.

Kerosene pyrethrum spray. This can be made up for about 50c. a gallon. Purchase as above. Dissolve ½ to 1 lb. pyrethrum in 1 gallon of white kerosene. Stir occasionally for two hours; let settle; then carefully pour off the liquid into a closed container. Add to it, about 3 ounces of artificial oil of wintergreen if it is wished to disguise the kerosene odor. This also makes a good fly and mosquito spray when the larger amount of pyrethrum is used. A thorough de-mothing job can be obtained only with a power spray gun or by the actual immersion of the garments in the liquid. The solution must actually touch the larvae or eggs; it does not "moth proof."

Fly Tox (Rex Research, Inc., Toledo, Ohio). About 50c. a pint (49c. at Liggett's). Contained by analysis 1¼ lbs. of fresh pyrethrum per gallon of kerosene. As with other liquid moth-proofing compounds, effective only if forced into all parts of the fabric. Not permanent.

Eulan (General Dyestuffs Corporation, 230 Fifth Ave., N.Y.C.). One of the "permanent" moth proofing compounds used mainly in commercial application. *Eulan BL* for application by dry-cleaning plants; may be applied at home with proper precautions. Removed by dry-cleaning solutions, so must be applied after each cleaning.

Konate (American Cyanamid and Chemical Corporation, 30 Rockefeller Plaza, N.Y.C.). ($1.00 a pint at Wanamaker's, N.Y.C.). Intended for commercial application. Formula recently changed, as the cinchona alkaloids previously used were found not to be stable to light. Information at hand indicates that this product is effective, but as stated previously no product has yet been found that gives permanent and absolute protection against moths.

Rinsing Larvex (The Larvex Corporation, New Brunswick, N. J.). (3 oz. cake, 50c. at Wanamaker's; makes 12 gal. of liquid). Clothes must be dipped in solution. Not permanent; washes off.

Not Acceptable

No Moth, Expello, Odora Motholator, and all other similar products put up in tin-can or glass devices to hang up in the closet. No clothes closet can be made moth-proof without sealing the door tightly.

A salesperson seldom tells the customer *how many* of these contrivances should be used even in an air-tight space. The Federal Trade Commission, to protect competitors, sometimes requires this information on the label, however. On the *Odora Motholator* is the statement: "Use Motholator and 1 Cedar Fluid Compound for each *1 cu. ft.* of *airtight* space; confine vapors emitted; keep doors, etc. closed." (*Italics, ours.*) If the makers' statements are to be accepted, an ordinary 3 by 5 by 8 foot closet would require 120 *Odora Motholators,* costing $24.00, not to mention air-tight sealing, in order to destroy the moths!

Flit (Stanco, Inc.). Price varies; up to 50c. a pint. Contained, by chemical analysis made in 1932, about 1 lb. pyrethrum to 120 gallons of kerosene. This concentration of pyrethrum is far too low to be dependably effective in killing moth larvae or eggs. Cover odor estimated to be principally citronella and oil of wintergreen. The manufacturer refuses to affirm or deny that the *Flit* now on the market is identical with that tested in 1932.

Vapoo (Vapoo Products Company). 5 oz., $1.00. The manufacturer claims that this product "cleans, brightens, disinfects and moth proofs in one operation" but analysis showed it to be a soap product consisting mainly of inexpensive detergents such as trisodium phosphate, borax, and soda, and containing only an insignificant amount of paradichlorobenzene (2.9%), the only ingredient which could have any moth-proofing effect.

Larvex (The Larvex Corporation). $1.19 a pint, with atomizer. Contains as active ingredient .52% sodium aluminum silicofluoride. Cannot be used on furs, and stains linings of other garments. Not effective when used as a spray as directed.

Sprays and other moth-proofing products containing arsenic.

Moth Wool (Baltus Rolfs, Inc.). Box of 7 pads, 95c., or 15c. a pad. Advertised as "a virgin wool pad saturated with an abundance of the particular kind of food the new-born moth likes." The promoters advance the theory that the new-born moths feed on and die of the "food greases" in these pads, which are impregnated with arsenic. No explanation is offered as to why the moth should feed on such "food greases" rather than on grease spots on fur or wool clothing.

VEGETABLE SOUP

THERE ARE NO FIXED STANDARDS OF judgment of canned vegetable soup, choice depending largely upon personal taste. There are, however, certain definite qualities which are desirable from a purely objective point of view. These include the presence of a large amount and variety of fresh vegetables and a good balance of ingredients. The vegetables should give evidence of careful cleaning and dicing. The solid materials should not be pulped as the result of improper cooking, but should retain so far as possible their original shape and color. If cereal fillers or noodles are present, they should be limited in quantity, so that the soup will be truly *vegetable* in composition as well as name.

In rating canned vegetable soups, the above factors were taken into consideration. The quality as well as the kinds of vegetables were noted. The taste was graded according to a standard tasting method, by having each of ten people sample the soups two at a time, each soup being compared with several other soups.

Some of the soups were labeled "concentrated." The labels on the cans directed that the contents be diluted with an equal volume of water before heating and serving. In preparing the soups for the flavor tests, all directions were, of course, carefully followed.

Tests were made to determine how much each brand of soup gives you for your money—whether it is worth while to buy *Hormel*, the "flavor sealed" soup which is made with "15 vegetables," at 15c. a can (or in some stores, two for 25c.), or one of the less expensive brands. One standard serving of each soup was used as a basis of comparison of costs, and weights and proportions of ingredients.

Best Buys

Heinz (H. J. Heinz Co.).
Campbell (Campbell Soup Co.).

Also Acceptable

Webster (G. L. Webster Co.).
Scott County (Morgan Packing Co.).
Hormel (Geo. A. Hormel & Co.).

Not Acceptable

Lily White (Distrib. R. H. Macy & Co. NYC).
Franco-American (The Franco-American Food Co.).
Ritter (P. J. Ritter Co.).
Phillips (Phillips Packing Co.).

Vegetable soups are adulterated in various ways. The most common type of adulteration found was the addition of large quantities of noodles, cereals, and potato pulp to give the soups a thick, "rich" consistency. When this is done, some tomato is added for coloring, the proportion of green vegetables is small, and the flavor poor. Such adulteration was found in several of the cheaper soups, such as *Ritter*, *Webster*, and *Scott County*.

Another indication of poor quality was the presence of a large proportion of pulped ingredients—due probably to negligence in control of cooking time, or to the use of overripe vegetables. Of the soups tested, *Heinz*, *Hormel*, and Macy's *Lily White* were the only ones free of pulped vegetables. Concentration of some of the soups to "double strength" was probably an important cause of pulping.

The number of vegetables found in each soup varied from six in *Scott County* to fifteen in *Hormel*. (Potatoes, which are used as filler, are not included in count or weight of vegetables.) The cost per serving ranged from 1.3c. for *Webster* up to 7.5c. for *Hormel* and 8.6c. for *Franco-American*.

With the exception of *Franco-American*, which was very highly spiced, all the soups depended for flavor mainly upon the vegetables and a beef stock foundation.

The taste rating as found is indicated in the table. This represents a consensus of opinion. In general, it was agreed that the flavor was not up to the standard of a good homemade vegetable soup, but that the better soups were fairly satisfactory.

BRAND	COST PER CAN	COST PER SERVING	NUMBER VEGETABLES	OUNCES VEGETABLES PER SERVING	TASTE
Heinz	12½c.	6¼c.	10	2.4	good
Campbell	10c.	3.8c.	13	1.2	good
Webster	3⅓c.	1.3c.	10	0.6	fair
Scott County	10c.	2.9c.	6	0.5	fair
Hormel	15c.	7.5c.	15	0.6	fair
Lily White	14c.	7.0c.	10	0.8	fair
Franco-American	14c.	8.6c.	8	0.4	fair
Phillips	5c.	1.9c.	8	0.9	poor
Ritter	5c.	1.9c.	8	0.3	poor

What SEED *to Buy and Where to Buy It*

Although it was not possible to have this much needed report ready for the May issue, we present it now for the benefit of those gardeners who make successive vegetable plantings through the spring and early summer. Good seed can be obtained—but not in 5-and-10 or hardware stores.

HOME GARDENERS MAKE THE GREAT, gullible market for poor seed. The standard of quality of home-grown vegetables is usually low in any event, and when amateurs are disappointed in a crop they accept the seedsman's explanation—unfavorable weather conditions and the gardener's own lack of skill. Droughts, poor gardening methods, and choice of wrong varieties do account for much low quality and loss; but even so, many amateurs would be astonished to see how much better vegetables they could grow if they used nothing but first-quality seed.

What does the seed packet really contain? Germination tests and field trials at Experiment Stations have proved that packets often contain much old, weak, and dead seed; and that certain stocks are plainly misnamed or one variety is substituted for another; in some cases the seed is a mixture of two or more distinct varieties, or a conglomerate in which the true strain cannot be distinguished at all.

Farmers can buy excellent seed in bulk. The same seedsman who offers good bulk seed may, however, sell merely fair or even poor stuff in paper packets. The tricks of the trade are many, too many to be told in a short article; but the amateur gardener needs to know that *most packet seeds are inferior*, and he should refuse to be impressed by beautiful catalogs, by pictures of "our workmen rogueing the crop," by dates and germination figures on the packet, or by "service" in the seed store.

Where to Buy

For highest quality in each of several kinds of seed it is necessary to buy from several specialists, because no seedsman offers excellent seed of all varieties. A few real specialists sell at retail, and the names of some of them are given in this article; but the usual seedsman's "specialty" is merely a good talking point, in the same class with most "tested," "certified," and "pedigreed" seeds.

The location of the seedhouse is of little consequence, because seed of any particular crop is grown in specialized sections from which all seedhouses get their supplies. What is important is the care a seedsman takes to keep his varieties pure and high grade. A fine superior strain of any variety cannot be maintained unless the seedsman controls his stock seed (from which the seed crop is grown). This means that he must run trial grounds and for best results grow his own stock seed. Whether he has trial grounds or not, any seedsman who offers a great many varieties is suspect. He cannot possibly control the quality of them all.

Gardeners should make use of their state Experiment Station services. State seed inspection bulletins may be useful if they name the seedsmen from whom samples were taken for test, and if the samples were given field trials. Germination tests without field trials have a very limited value. Germination (percentage of sprouts) in a germination chamber may be twice as high as would be possible for the same seed sown in the garden, and only field trials show whether the *strain* of a given variety of seed is any good. A very high percentage of germination is certainly desirable, but for fine crops it ranks second in importance to quality and purity of strain.

Experiment Stations that are running field trials of vegetable varieties may profitably be visited by home gardeners, who can there take notes and ask questions. A Station worker should not, however, be asked to recommend "the best seedsman," but instead should be asked where he buys the seed for his own home vegetable garden.

Best Sources of Supply

The following seedsmen offer the same grade of seed in packets as in bulk:

Joseph Harris Co., Inc. **(Coldwater, N.Y.). Probably the best commercial seedsman for persons who buy all their vegetable seed from the same firm. Specialties: beans, beets, corn, muskmelons, tomatoes. Ask for treated seed.**

Eastern States Farmers' Exchange **(Springfield, Mass.). All seed treated against disease. Low prices.**

Francis C. Stokes Co., Inc. **(Moorestown, N.J.). Tomato seed only.**

Comstock Ferre Co. **(Wethersfield, Conn.). Corn, peas, beans, onions.**

F. H. Woodruff & Sons **(Milford, Conn.). Specialties: corn, beets. Good general list.**

F. W. Eberle **(Albany, N.Y.).**

Robson Seed Farms **(Hall, N.Y.). Specialty: sweet corn.**

Abbott & Cobb **(Philadelphia). Specialty: celery. Good list.**

Also Acceptable

The following seedsmen are believed to be reliable, but are rated *Acceptable* for lack of detailed information:

Brown Bros. Seed Co. (Vancouver, B.C. Canada).

Northrup King & Co. (Minneapolis, Minn.). Sweet corn a specialty. Highest-priced seed, good. Would be listed among *Best Sources of Supply* except for the fact that they sell more than one grade of seed.

Puget Sound Seed Co. (La Conner, Wash.).

D. V. Burrell (Rocky Ford, Colo.). Specialty: cantaloupes.

Wisconsin Cabbage Seed Co. (Racine, Wis.). Disease-resistant strains.

O. H. Will & Co. (Bismarck, N.D.).

Gill Bros. (Portland, Ore.).

Not Acceptable

None of the following can be generally recommended to retail buyers. Some of their seed is good, but it is impossible to know what are the good kinds in any one year. Even varieties which have been good for several years from the same seedhouse may suddenly prove unsatisfactory.

Ferry Morse Seed Co. (Detroit, Mich.; San Francisco, Cal.). Specialties: celery, carrots, lettuce, beets. Highest-priced seeds of these specialties, very good. As a general seed source, however, cannot be recommended.

Peter Henderson & Co. (35 Cortlandt St., N.Y.C.).

Alexander Forbes & Co. (Newark, N.J.).

Henry A. Dreer (Philadelphia).

W. Atlee Burpee Co. (Philadelphia).

Vaughan's Seed Store (Chicago; N.Y.C.).

Breck's (85 State St., Boston).

Good Seed Co. (Fredonia, N.Y.). Sells through schools and 4H Clubs.

Commission packets of any seedsman—the brands displayed on racks at florists' and 5-and-10-cent stores, hardware and department stores e.g., *Ferry's, Vaughan's, Best By Test, Sure to Grow.* Dates and germination figures on the packets *may* offer some protection in the very few states having good, well-administered seed laws (e.g., New York); but gardeners who buy this grade of seed because it is cheap and conveniently displayed should bear in mind that such seed is a poor gamble at any price. The best sources of seed supply give much more real value for the money.

"Collections" (City Garden Collection, Home Garden Collection, etc.) got up to sell at a low price.

Selection of Varieties

Never select varieties on the basis of catalog descriptions. The kind best for one section may be a failure elsewhere; kinds "especially for the home garden" are often inferior; and "the best" or "most popular" varieties were developed for the commercial market, which demands first of all, big good-*looking* vegetables, tough enough to survive transportation and to keep as long as possible. Certain varieties which were once good and are still described in glowing terms, are now poor (e.g., Lettuce *Salamander*), because seed growers have lost interest in them and have let their strains go to pieces. Novelties, however attractive, are best left for Experiment Stations to try, because they are often much less satisfactory to grow than ordinary standard commercial varieties adapted to the locality. Most standard varieties are fairly good.

Variety lists given in state bulletins on home gardening are helpful, but do not satisfy the requirement of quality so much as of wide use and the ability to withstand adverse conditions. Factors of climate, locality, and attack by insects or disease may sometimes dictate the choice of an inferior variety; but it is suggested that home gardeners write, or better go, to their state Experiment Stations and ask for the names of vegetable varieties adapted to their sections which are especially noted for fine *flavor*. Another suggestion: farmers who operate roadside stands for "particular" trade often use very fine varieties not sold in city markets. Sometimes the farmer

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will tell what they are; or the Experiment Station may, if it knows. Do not forget that a good early variety sown in succession for later crops may often be substituted for an inferior late variety.

A SHORT VARIETY LIST

The following varieties are *recommended for flavor,* and have been checked for suitability to different parts of the country. It should be remembered that the best variety will produce a poor crop if the strain of seed is poor, and that no vegetable shows its true character unless it is well grown and is taken at the right stage of tenderness. Unskilled gardeners can grow tough vegetables from *any* variety. With respect to beans and peas, it should be noted that so-called "legume inoculants" do not improve the crop.

BEANS

GREEN POD

Stringless Green Pod (not "Giant Stringless Green Pod").

Bountiful.

Tendergreen. Favorable reports from Experiment Stations of Ill., Pa., and N.Y.

Georgia Pole (H. G. Hastings Seed Co., Atlanta, Ga.). Favorable report from N.Y. Experiment Station.

WAX POD

Pencil Pod Black Wax.

GREEN SHELL

French Horticultural. A good strain is scarce.

BEETS

Crosby's Egyptian. Make successive plantings.

Early Wonder. Make successive plantings.

Ohio Canner. Fine texture; stands long without getting tough.

BROCCOLI

Italian Green Sprouting (*Calabrese*). Endures heat.

CABBAGE

Both variety and strain are very important, and quality depends on quick growth.

Golden Acre. Plant in succession for later crops.

Louisiana Copenhagen. A very early *Golden Acre* sold by Eastern States Farmers' Exchange.

Penn State Ballhead. Late.

Savoy Perfection Drumhead. Late. N.D. Experiment Station reports against *Savoy.*

CHINESE CABBAGE

Wong Bok. Easier to raise than winter varieties.

Chihli. Favorable report from N.D. Experiment Station.

CARROTS

Tendersweet. Has best flavor; shape varies.

Nantes Half Long.

SWEET CORN

There are more than a thousand varieties. Local preferences in such matters as size of ear and color of kernels, as well as the requirements of climate or season, and the seriousness in certain localities of disease and insect pests, account for this bewildering array. Amateur gardeners living in sections where the ear worm or bacterial wilt threaten to ruin the crop should apply to their state Experiment Stations for a list of the best resistant varieties for their sections. Where the season is short, only the earliest kinds can be used. The following, listed in order from early to late, are recommended for flavor, sweetness, and tenderness, with little regard for other factors. Plant rectangular blocks of each variety, for good pollination.

Pickaninny. Earliest, small, black.

Golden Gem. Not good in South.

Dorinny.

Golden Sunshine.

Golden Bantam, if the strain is good.

Early Pearl (C. C. Hart Seed Co., Wethersfield, Conn.).

Black Mexican. Ready several days before the color turns, as well as afterward.

Golden Cross Bantam. Wilt resistant.

Spancross 39 and *Pearlcross* (C. C. Hart Seed Co.) are new wilt-resistant varieties of sweet corn which are also somewhat protected from corn-ear worm by their tight husks. Hybrid sweet corns are good in the East, in the Pacific Northwest, and in some parts of the corn belt, but probably not in California.

LETTUCE (head)

Requires moisture, fails in very hot weather.

New York. Same variety sold as *Wonderful* and *Los Angeles.* Crisp head; slow to mature. There are many strains for different localities. Numbers 12 and 515 for the East. Ask your state Experiment Station what strain to buy.

White Big Boston. Usually the most successful.

White Paris Cos. Same variety sold as *Trianon.* For heads in cool weather, leaf lettuce in summer.

PEAS

Require cool weather. The earlier they are planted, the bigger the crop. Train on brush or wire to lengthen the season.

Lincoln. Probably the best.

Little Marvel. Very small vines and pods. Unfavorable report from N.Y. Experiment Station.

Thomas Laxton.

Giant Stride. Some strains, e.g., *Asgrow 40,* resist fusarium root rot. Favorable report from N.Y. Experiment Station.

SPINACH

Long Standing Bloomsdale Savoy.

SUMMER SQUASH

Italian Vegetable Marrow, also known as *Cocozelle.*

TOMATOES

Both variety and strain are very important. Use only earliest varieties in short-season localities. Tomatoes must have a *continuous* supply of moisture, or they crack.

Bonny Best. Early.

Marglobe. Blight resistant; main crop.

Break-O'-Day. For training upright.

Comet. For training upright. Harris has a good strain.

EAT MORE MEAT!

—advises a physician in this article on the place of meat in the human diet.

No Food Is Subject to More Violent denunciation than meat. There is hardly a human ailment for which the eating of meat has not been held responsible; and this attitude remains—thanks to the efforts of cultists, faddists, and food advertisement writers—despite an enormous amount of investigation into the whole subject of diet during the past thirty years.

Consideration of human beings as related to animals helps to clarify many diet questions, especially that of meat-eating. The animal kingdom can be divided into three classes, according to the predominant type of food eaten: *herbivora* (animals living only on vegetable food), *carnivora* (animals living only on meat), and *omnivora* (animals living on both vegetables and meat). From the records and remains left by prehistoric man it is evident that human beings have always been omnivorous, eating meat as well as fruits and roots.

Among the earliest developments of civilization were agriculture and animal husbandry. These made available a steady supply of both grain and meat, thus laying the basis for the abandonment of nomadic life, the building of towns, and a tremendous increase in population.

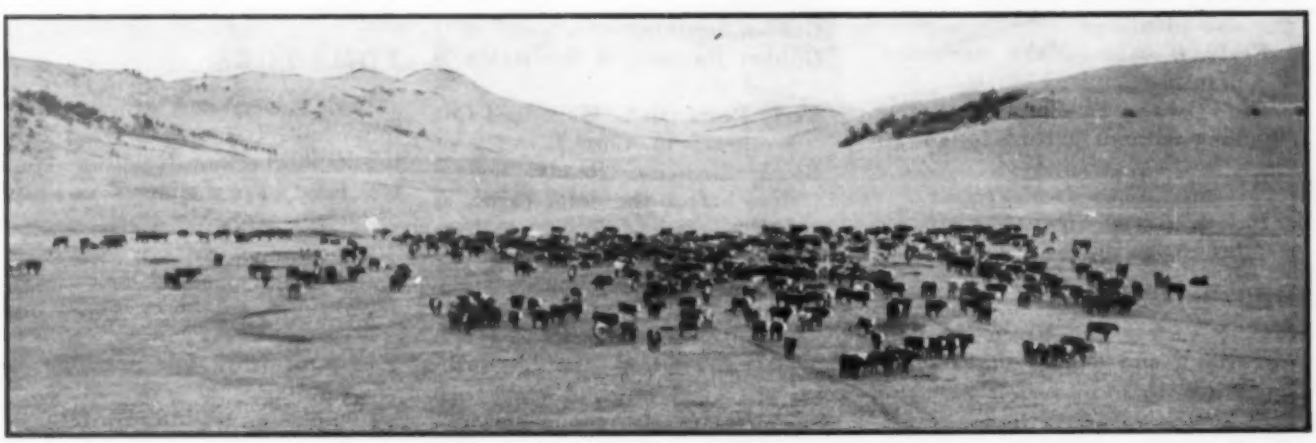
Despite the fact that man is historically and biologically a meat-eater, there appeared early in the nineteenth century a movement for the adoption of a purely vegetarian diet. Examination of the first books on this subject shows not even a pretense to a scientific basis for this fad. Sentimental and esthetic horror of slaughtering animals to eat their flesh was invoked by the vegetarian cultists, and God and the Bible were liberally quoted for support.

With the intense development of the biological sciences late in the nineteenth century, the vegetarians felt the need for stronger arguments for their cult than those derived from the Bible. From 1900 on they developed various systems of pseudo-scientific argument; the type of argument depending upon whether it was presented by simple vegetarians, naturopaths, chiropractors, or other faddists. But in the main they claimed that the only foods that man was meant to eat were "natural" foods (meat is not natural!), and that the abandonment of "natural" foods for meat was responsible for all or nearly all disease. They also insisted that fruits and vegetables were more easily digested than meat.

These mistaken notions, carried to their inevitable conclusion by many faddists, lead to such social crimes as taking a stand against vaccination, the use of serums and glandular extracts, scientific vivisection, and the use of warm, woolen clothing, fur, and leather.

The truth is, of course, that since man is biologically omnivorous, meat is one of his natural foods. Totally herbivorous animals have a proportionately longer gastro-intestinal tract than man, with stomachs of an entirely different shape, because of the greater bulk of vegetable foods and the longer period of time required for their digestion. Wholesome meat does not cause any disease, and meat is more easily digested than vegetables and fruits which contain a great deal of roughage. In addition, one who lives only on vegetarian foods must eat too large a quantity of food in order to get sufficient proteins, which are so plentiful in meat.

Physicians themselves have been responsible for some of the false impressions concerning meat. With the development of biological chemistry, it was found that in kidney diseases the products of protein digestion gather in the blood. Since meat is richest in proteins, physicians jumped to the conclusion that meat can cause kidney disease. Further scientific investigation proved beyond doubt, however, that these products of protein digestion gather in the blood because the in-



Underwood Let Cattle Digest Your Grass for You.

jured kidney cannot take them from the blood and pass them into the urine. The kidney injury comes first and meat has nothing to do with it; in fact, it has been found that patients with certain types of kidney disease are helped by eating large quantities of meat.

Eskimos Thrive on Meat

We know that Eskimos and certain Pacific islanders, who of necessity feed exclusively on meat, far from suffering for it, live in excellent health. The Arctic explorer, Vilhjalmur Stefansson, lived for years in the Arctic on meat and fish alone without untoward effect. For the benefit of skeptical physicians, he repeated this diet in New York for a full year under scientific observation. Again he suffered no ill effects; on the contrary, the diet seemed decidedly beneficial. It has been thought that the perfect condition of the teeth of Eskimos is due to their meat and fish diets, since their teeth begin to decay when our cereal foods are introduced. This question is still not definitely decided, however.

It should not be inferred that all people should eat only meat; that would be ridiculous and economically impossible. An adult can live on a totally vegetarian diet, but he will probably have a low reserve of protein, which can cause trouble under the demands of unusually prolonged physical labor or severe illness. The feeding of a strict vegetarian diet (which of course excludes the use of such animal products as milk or eggs) to infants and children is nothing short of criminal, for protein provides the groundwork for growth. Children therefore need protein in much greater quantity in proportion to their weight than do adults.

Meat is composed of the food elements known as proteins and fats. The fat is a rich source of energy, giving 125 per cent more calories per ounce than starch. Meat is therefore particularly important for the hard-working manual laborer.

Protein provides the basic elements —"amino acids"—for building and repairing the body. In digestion each molecule of protein is broken down into many kinds of simple amino acids. Some of these acids can be manufactured in the body, but others—called the *essential* amino acids—must be obtained from food. It is precisely these essential acids which are plentiful in meat proteins and are only sparingly present in vegetable and cereal proteins. This, together with meat's comparatively easy digestibility, makes it indispensable for children; and, if not indispensable, certainly highly desirable for the adult. It is a matter of common knowledge that for most people the addition of good meat to the diet makes for a tastier, better rounded, and more appetizing meal.

Experiments have shown that from one-and-one-half to two ounces of protein a day will replace the daily protein losses from the adult's body. This amount of protein is obtained in from seven to ten ounces of meat or fish; or seven to ten eggs; or a quart-and-a-half to two quarts of milk; or five to seven ounces of cheese. Any suitable combination of these taken in the course of a day, such as a glass of milk, two eggs, a quarter-pound of meat, and enough cheese to cover a slice of bread, is satisfactory.

Experimentally, these amounts appear sufficient to cover protein losses but it is well known that the best development and state of health, with adequate reserves against illness, is obtained when the above estimates are exceeded by about fifty per cent. It is significant that without any urging or scientific intent, those who can afford it unconsciously choose a diet providing this liberal allowance of proteins. If there is plenty of meat in the diet and it is filled out with fruits, vegetables, and cereals, to provide enough calories, vitamins and minerals, one has a better than "adequate," balanced diet.

Unfortunately, the knowledge that high-protein foods are necessary does not provide them. Indeed, they are usually the most expensive of all foods. When income becomes dangerously low, it is the protein- and fat-containing foods that suffer replacement by the cheaper starchy foods, such as potatoes and cereals. This fact adds significance to last year's meat strikes, when consumers in many cities militantly—and to an extent successfully—protested the high price of meat, and indicates the need for determined struggle by organized consumers whenever business or governmental practices deprive those on low incomes of vitally necessary products.

The facts about the importance of meat in the diet emphasize the dangers in plans like the AAA to restrict the production of meat and other commodities in order to drive up prices. This kind of depression economy—depriving a large part of the population of necessary food—threatens to hand down to the next generation a population inferior in stature, sturdiness, and physical and mental efficiency.

ANACIN AND BAUME BENGUE

ANACIN WILL NO LONGER BE ADVERTISED as a competent treatment for colds, headache, or menstrual pain; nor will the manufacturers claim that their formula is "recognized throughout the world as safe, reliable and prompt in relieving pain." At least, these changes in sales methods were agreed upon by the Anacin Company of Chicago, after the Federal Trade Commission began an inquiry. Consumers should watch Anacin advertising to see just how F. T. C. orders are carried out. One of the things that the Anacin Company has not told the public is that *Anacin* contains the coal-tar product, acetanilid—a habit-forming drug that can react fatally upon persons who are susceptible to it. And there's no way to tell whether you belong in the susceptible minority except by trying *Anacin* or some of the other pain-killers that contain acetanilid.

The manufacturers of *Analgesique Baume Bengue* were ordered to explain to the Federal Trade Commission just how their ointment can penetrate skin, muscle, and even blood vessels to kill the pain of rheumatism, neuritis, and similar diseases. The government says it can't be done, and that the advertisements of Thomas Leeming and Company are false. Although the federal agency concedes that *Baume Bengue* can serve as a counter-irritant by desensitizing nerve ends in the area of application, the company's assertion that the product will enter the blood stream and reach the seat of pain is contradicted.

(*Continued from Page 2*)

honest and dangerous business practices that it was passed by the Senate.

What was the attitude of most consumer organizations during this time? They deplored the changes in the bill; they prayed for the restoration of deleted provisions. Nevertheless, they supported almost every one of the numerous revised bills, insisting that while it wasn't all they wanted, it was better than the old Food and Drugs Law.

Each such assurance of support was only an invitation to the lobbies to pull some more of the bill's teeth; they knew that not only the numerous Congressmen they controlled, but consumer organizations also, would back their new effort.

If from the very beginning the many consumer groups represented in Washington had fought tooth and nail every change in the Tugwell bill—indeed, had demanded the strengthening even of the original bill, which, good though it was, had notable defects—the legislative picture with respect to foods and drugs might be far different.

The latest revision of the bill is now before the House of Representatives for action. A few concessions to consumers, such as grade labeling, have been made, for no other reason than to quiet criticism. These features will without question be eliminated in conference between the House and the Senate, before the bill goes to the President for signature.

If the demand for early adjournment of Congress results in the halting of this legislative fraud, consumers will have another chance for at least partially adequate legislative protection in the fields of foods, drugs, and cosmetics. They should be prepared to fight for such legislation as hard and as persistently as the lobbies have fought against it.

THE FIRST ISSUE

MEMBERS OF CONSUMERS UNION mailed in a speedy verdict of approval for the first issue of CONSUMERS UNION *Reports*. "A very fine job," "splendid," "easy to read," and "magnificent" were some of the comments. Many of the letter writers enclosed lists of friends and acquaintances with a request that descriptive literature and application blanks be sent them. Others suggested new projects for reports, ranging from hot dogs to secondhand automobiles.

Excerpts from typical letters:

Congratulations on the first report of Consumers Union; it is a very attractive and well arranged publication. . . . I *can*, now that I have seen this bulletin, and *shall* recommend your service to all my friends and acquaintances.

MRS. CORNELIUS D. HUNT
Katonah, N.Y.

The first issue of CONSUMERS UNION *Reports* is a magnificent beginning. I shall do all in my power to call attention to it and seek its support.

RICHARD BABB WHITTEN
Director, Commonwealth College
Mena, Arkansas

The report is a splendid piece of work in content and typographical composition.

S. JOHN BLOCK
New York, N.Y.

Please accept my hearty congratulations on your first bulletin, received today. It is extremely readable and the material is well arranged for reference. I like the fact that you give considerable advice on how to shop, as in the case of hosiery; I hope that this will continue to be emphasized. The illustrations help to bring the material alive also; I hope you will continue them in generous measure.

ALLAN A. TWICHELL
Knoxville, Tenn.

I have just received the first volume of your *Reports* and I think it's swell. It answers for me a need which I have been aware of for some time, but which, until now, I had no idea how to fulfill.

WILLIAM HOROWITZ
New York, N.Y.

The first issue of CONSUMERS UNION *Reports* has been received today and I am writing immediately to say what a very fine job I think it is. Not only in appearance is it superior to anything else that I have seen in this field but the contents, the selection of subject, the treatment give a feeling of confidence in the competence and sincerity of those who are responsible for it. May I particularly commend the section dealing with makers unfair to labor.

ALBION A. HARTWELL
Interprofessional Association
New York, N.Y.

I am very pleased with the intelligence and excellence of your first report.

WILLIAM E. DODD JR.
Williamsburg, Va.

I have read with interest the first issue of CONSUMERS UNION *Reports* and I take this opportunity to extend to each and every individual connected with the organization the appreciation of the United Rubber Workers of America for the services they are rendering the consumers of America. I am personally interested in your report because it deals with facts and it will be of great material interest to organized labor as a whole.

FRANK GRILLO
General Secretary-Treasurer
United Rubber Workers of America
Akron, Ohio

I want to congratulate you on your first report. It is not only useful and practical but it is really brilliantly done from a journalistic point of view.

HELEN WOODWARD
New York, N.Y.

To CU Members:

In the past month, the rate of pay of all members of the Consumers Union staff has been increased from $12.50 to $14 per week. By unanimous vote, the members of the staff without dependents turned the full amount of the increase over to those with families to support.

Starting practically without funds, volunteering to work long hours at low pay to establish an organization which they believed to be vitally necessary, the staff has, in a few short months, built up a sound, competent, technical service of which members can be proud.

If the staff's efforts are to achieve the full success they deserve, if this service is to grow as it should, the cooperation of every member is needed. Every member has friends who want the kind of information the monthly *Reports* are supplying; who are planning, perhaps, to buy an automobile or a refrigerator and want to know what makes are best. All want to know what are the best brands of such things as toilet soaps, canned foods, shoes, hosiery, and numerous other products which already have been or soon will be covered in the *Reports*.

Urge them to join Consumers Union. You will be helping them and helping to build Consumers Union at the same time.

COLSTON WARNE
President